

BUFFALO SEWER AUTHORITY

# DRAFT

# Drainage Report

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Green Infrastructure and Drainage Improvements for  
the Genesee Street Gateway Streetscape Project

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**WATTS**  
ARCHITECTURE &  
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## 1 EXECUTIVE SUMMARY

This report summarizes green infrastructure capture and drainage design for the Genesee Street Gateway Project. The project location is Genesee Street between Washington Street and Elm Street in the City of Buffalo. The roadway consists of one dedicated bike and one dedicated travel lane in each direction and a center turn lane with granite curb and concrete sidewalks on either side. Parallel parking is available at roadside for most of the area. The proposed project improvements include traffic calming curb extensions, also known as "bump outs," which isolate the on street parking and create a more walk able community. The green infrastructure portion of the project includes landscaped storm water planters at various areas for the length of the project. The planters contain crushed stone reservoir areas beneath the planting soil, designed to store storm water runoff, and promote infiltration into the underlying soils. New landscaping and sidewalk areas are included with the improvements at the traffic island at the intersection of Ellicott Street, Genesee Street and East Chippewa Street and at Remembrance Park, just west of Washington Street.

The project is a streetscape that includes asphalt milling and pavement rehabilitation, with full depth reconstruction along the side of the roadway between the curb line and Right of Way. The project area consists of approximately 3.31 acres total area. Within the total area includes 1.25 acres of disturbed areas, where full depth reconstruction occurs.

The results of the hydraulic analysis on the proposed infrastructure for the project at the 90<sup>th</sup> percentile, 2-year and 25-year 24-hour storm events for the project are summarized below:

**Table 1**  
**Hydrologic Analysis Summary**  
**Comparison of Pre and Post Construction**  
**Conditions**

Rainfall Event	Existing Pre-Development Discharge	Post-Developed Discharge
90 <sup>th</sup> percentile (0.85")	$Q_{90} = 3.50$ cfs	$Q_{90} = 1.78$ cfs
2-Year (2.25")	$Q_2 = 10.52$ cfs	$Q_2 = 8.25$ cfs
25-Year (4.00")	$Q_{25} = 19.19$ cfs	$Q_{25} = 18.23$ cfs



**Table 2** below summarizes the annual storm water capture volumes calculated for the project. The volumes are based on an annual average rainfall of 42 inches for the City of Buffalo.

**Table 2**  
**Capture Area Summary**

Green Infrastructure DS No.	SQRT Capture Area	Planting Bed (PB) No.	SQFT Drainage Area	Annual Depth Captured (FT)	Annual Volume Captured (CF)	Annual Volume Captured (Gallons)
DS 2	75%	PB-1A	5,276	2.63	13,876	103,792
DS 4	75%	PB-2A	34,149	2.63	89,812	671,793
DS 5	90%	PB-3A	2,103	3.167	6,660	49,818
DS 15	90%	PB-4A	19,614	3.167	62,118	464,369
DS 7	90%	PB-5A	3,711	3.167	11,753	87,910
DS 8	90%	PB-6A	1,765	3.167	5,590	41,811
DS 9	90%	PB-7A	3,275	3.167	10,372	77,582
DS 10	90%	PB-8A	2,841	3.167	8,997	67,301
DS 11	90%	PB-9A	2,159	3.167	6,838	51,145
DS 18	90%	PB-3B	4,155	3.167	13,159	98,428

DS 24	50%	PB-5B	6,143	1.75	10,750	80,412
DS 31	75%	PB-6B	3,043	2.63	8,003	59,863
DS 29	50%	PB-1B	5,742	1.75	10,049	75,163
DS 30	50%	PB-2B	2,715	2.63	7,140	53,411
DS 35	75%	PB-1C	6,022	2.63	15,838	78,828
DS 39	75%	PB-3C	3,376	2.63	8,879	66,414
DS 41	90%	PB-4C	1,824	3.167	5,777	43,209

Total: 2,171,519 Gallons

## 2 INTRODUCTION AND SCOPE

### A. Introduction

This narrative report has been prepared for the Buffalo Sewer Authority (BSA) to summarize the proposed drainage, green infrastructure, and pollution prevention control included in the Genesee Street Gateway Project. Construction is planned to begin in late Summer 2015. The project is being constructed for the City of Buffalo Department of Public Works, Parks and Streets Division of Engineering (DPW) in collaboration with the BSA.

### B. Location

The project location is Genesee Street between Washington Street and Elm Street in the City of Buffalo, Erie County New York. See **Figure 1** in **Attachment A** for the Project Location on a USGS map.

### C. Scope

Storm water run-off for the existing project area discharges to combined sewers in the City of Buffalo. Therefore, the drainage design must meet BSA standards, policies and requirements. The purpose of this report is to summarize the drainage design for the project and show conformance with BSA policies. The project includes green infrastructure measures for reducing the volume of run-off captured by the combined storm and sanitary system and managing storm water. The green infrastructure measures included in the report are designed in accordance with the New York State Department of Environmental Conservation (NYSDEC) storm water manual as applicable. Storm water run-off capture volumes, pre and post construction hydraulics, design criteria, and pollution prevention control methods are described in this report.

Erosion and sediment control components are included in the project. The erosion and sediment control components in the project are designed according to the specifications documented in the New York Standards and Specifications for Erosion and Sediment Control (August, 2005).

The following project plans and specifications are referenced in the narrative that follows, and are included in the appendix of this report.

- Project Plans, Profiles, and Details (From Contract Plans):

TS-01 TO TS-03	Typical Sections
GN-01	General Notes
PL-01 to PL-04	General Plan
PR-01 to PR-04	Profile
IG-01 to IG-04	Intersection Grading
LP-01 to LP-04	Landscaping Plan
LD-01 to LD-12	Landscaping Details
LS-01 to LS-02	Landscaping Sections
GIP-01 to GIP-04	Green Infrastructure Plans
GI PR-01 to GI PR-02	Green Infrastructure Profiles
GI-01 to GI-03	Green Infrastructure Details
20086DD (BSA std. sheet)	Standard Catch Basins – Types 1,2,&3

- Project Technical Specifications (from Proposal Book);

GI-01 to GI-24	Green Infrastructure Systems and Landscaping
SS-01 to SS-81	Special Specifications

- Project Technical Specifications (Additional Sources);

*New York State Department of Transportation (NYSDOT) Standard Specifications*  
*City of Buffalo Standard Specifications for Construction and Materials*

#### D. Responsibilities for Sediment and Erosion Control Implementation

As specified in the Project Special Specifications, Items No. 209.11000011 Inlet Filter Sediment Control for New Catch Basins and 209.12000011 Inlet Filter Sediment control for Existing Catch Basins, and the Project Erosion and Sediment Control notes on plan sheet GN-01, the Contractor is responsible for implementing sediment and erosion control measures. Erosion and sediment control measures shall be installed prior to any soil disturbance for which they are intended and shall remain in place until soils are permanently stabilized.

The contractor is required to designate a qualified "Erosion and Sediment Control Supervisor", responsible for implementing the erosion and sediment control plan and for inspecting and maintaining the control measure.

### 3 PROJECT INFORMATION

#### A. Project Summary

The scope of Genesee Gateway project includes installation of new sidewalk, curbs, landscaping, street lights, traffic signal modifications, and pavement rehabilitation (shallow mill and inlay). The landscaping work includes new planters in the sidewalk areas. Most will include green infrastructure storm water practice as a reservoir course will be installed under the planting beds. The project is to be performed over one (1) phase divided into smaller stages (work zone phases) for traffic control purposes. The four phases include: work on the North side of Genesee Street from Washington Street to Elm Street, work on the south side of Genesee Street from Washington Street to Elm Street, the reconstruction of Remembrance Park, followed by milling and paving operations through the entire corridor. See **Figure 2** in **Attachment A** for the approximate project area shown on a recent aerial photograph.

The disturbed area of the project includes full depth reconstruction areas, and these areas total 53,997 square feet (1.24 Acres). Upon completion of the project there will be a decrease in impervious area from 1.15 acres of existing impervious area to 1.14 acres of proposed impervious area within the project disturbed area. For a detailed analysis of existing and proposed conditions, see the calculations included in **Attachment C**.

#### B. Storm Water Management Objectives

Storm water runoff for the project area discharges to the City's Combined Sewer System. Temporary and Permanent storm water management objectives will apply, per BSA policies.

1. Temporary Objectives: The objectives for temporary measures are to provide temporary erosion and sedimentation controls during construction to minimize soil erosion and waterborne transport of soil material off the site during construction. Although temporary

ESC measures will be implemented, it is anticipated that soil erosion and sedimentation and temporary impairment of storm runoff cannot be entirely prevented. The temporary ESC measures for this project are described in **Section 6** of this report.

2. Post-Construction Objectives: The project includes green infrastructure measures for reducing the volume of run-off captured by the combined sewer system and managing storm water. The Storm water Management Practices (SMP's) included in the project are designed in accordance with NYSDEC storm water manual as applicable.
  - *Capture Volume:* The primary objective for the permanent storm water management practices is to promote storage in the reservoir course beneath the proposed planters and infiltration to the underlying subgrade to reduce flows to the combined sewer system. The proposed SMP's are designed to bypass runoff volumes which exceed the storm water capture volume at 50 percentile, 75 percentile or 90<sup>th</sup> percentile storm event water elevations depending on the available underground storage volume at each location. They also provide significant regulation of the peak discharge for lower frequency rainfall events. The permanent measures for this project are further described in **Section 5** and in **Table 2** of this report.
  - *Peak Flow Reduction:* The second objective of the permanent storm water management practices is to provide regulation of the peak discharge at the 90<sup>th</sup> percentile, 2-year and 25-year rainfall events. All storm water runoff from the project site discharges to the City's combined sewer system. The addition of storm water planters reduces the impervious area in the corridor, the site discharge and the downstream flow rates at the 90<sup>th</sup> Percentile 2-year and 25-year rainfall events. Peak storm event flow rate summaries are included in table 4 later in the report.

### C. Description of Project Construction

Construction activities resulting in soil disturbances will take place either within the sidewalk areas or in locations where utility trenching is required in the roadway area. The majority of the area within the project is the existing roadway. Work within this area will consist of a shallow mill and inlay. Major work activities for the project will include:

- Reconstruction of sidewalks and driveways including bump-outs at corners and widening of sidewalk areas
- Construction of the storm water management practices (storm water planters)
- Excavation and installation of underground utilities
- 2-inch shallow mill and 1 ½" inlay of asphalt concrete pavement
- Final land grading and planting of lawn and other landscaping
- Replacing the existing street lighting with decorative, LED light standards
- Painting existing signal poles and arms and reconfiguring the Ellicott and Chippewa Street signal system

The construction of the improvements for the project, in particular the addition of landscaping and storm water planters, will result in a reduction in impervious area for the project area.

## 4 EXISTING SITE CONDITIONS

The existing project site is depicted in the attachments of this report on the Existing Drainage Areas as well as **Attachment A** which includes the project location on a USGS map and a recent aerial photo.

### A. Land Use

The existing roadway consists of one or two lanes in each direction with granite curb and concrete sidewalks on either side. Parallel parking is available at roadside for most of the area. Commercial buildings and asphalt paved parking areas are adjacent to the roadway throughout the project area.

The disturbed area for construction site encompasses approximately 1.25 acres of paved areas and approximately 3,000 additional square feet of landscaping or lawn. The hydrologic conditions of the existing project site are detailed in **Attachment E** and summarized in **Table 3** below.

**Table 3**  
**Hydrologic Data – Pre-Development Conditions – Project Site**

Surface Cover Type (% of Disturbed Area)	Area Sq Ft (Acres)	Hydrologic Curve No. weighted by Soil Type	Weighted Composite Hydrologic Curve No.
Pavement, Walks, Drives (92.9%)	50,145 (1.151)	98	90.03
Lawn/Landscaping (0.07%)	4,440 (0.102)	80	6.51
<b>Total Project Area</b>	<b>(1.24)</b>		<b>96.54</b>

### B. Topography and Existing Drainage Patterns

The existing project site is fairly flat sloped (roughly 0-2% slope), generally pitching from west to east with the grade of Genesee Street. The surface elevations within the project limit ranges from approximately 616 feet on the west end of the site to 612 feet on the east end of the site.

The roadway is crowned, and sidewalks drain toward the road from the Right of way. Water is collect end at the roadway curb and collected in catch basins along the roadway.

### C. Existing Storm Sewers and Discharge Points

There are three main site discharge points for the project site. The Genesee Street Trunk Sewer collects flows for most of the project area, and the existing drainage system for the project connects into the trunk sewer at various locations. The trunk sewer is an 84-inch diameter brick sewer which flows west to east in the project area. Run-off at Oak Street and Elm Street are discharged to 30-inch diameter storm lines, which continues south to the city's combined sewer system.

### D. Site Soils

The NRCS Web Soil Survey shows the project area consists of 100% Ud (Urban Land), and is unclassified. The drainage analysis assumed the soils to be Soil Type D. Type D soils are comprised of soils having very slow infiltration rates when thoroughly wet. These consist primarily of clays that have high-shrink-swell potential, soils that have a high water table, soils that have a clay layer at or near the surface and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

Soil borings ranging from 9 to 12 foot depth were taken at various locations within the existing sidewalk area in the project area. The borings indicated that sub soils for the project predominantly consisted of a brown or gray fine sand with little silt from the depths ranging from of approximately two feet to five feet depth. Soils from approximately 4 or 5 feet depth to 9 feet depth predominantly consisted of a brown or gray silty clay. Although the boring results revealed locations with sandy silt soils, the soils in the drainage analysis remained Type D to provide a conservative analysis.

See **Figure 3** in **Attachment A** for the project location on the Soil Survey map. The Geotechnical report is included as **Attachment B** at the end of this report.

### E. Potentially Sensitive Environmental Resources

A historic section of the project area was identified between Oak and Ellicott along the south side of Genesee Street. New York State Office of Parks, Recreation and Historic Preservation recommended that any future plantings or trees should not obscure signage or advertising in this area.

### F. Off-Site Areas

The amount of offsite area that sheet flows onto the project site is minimal. A portion of the water that drains onto the site from offsite area is captured in the site drainage system. Runoff from portions of the M & T Bank parking lot near the Washington Street and Genesee Street is collected by drainage structures within the lot and directed underground to the 84-inch trunk sewer on Genesee Street.

## G. Existing Conditions Hydrologic Analysis

A hydrologic and hydraulic analysis with the SCS Unit Hydrograph method is being prepared for the project site and off-site areas. Hydrographs were generated for the 90<sup>th</sup> percentile, 2-year, and 25-year rainfall events. The results of the analysis are detailed in **Attachment C** and summarized in **Table 4** below.

**Table 4**  
**Hydrologic Analysis Summary**  
**Comparison of Pre and Post Construction**  
**Conditions**

Rainfall Event	Existing Pre-Development
90 <sup>th</sup> percentile (0.85")	$Q_{WQ_v} = 3.50$ cfs
2-Year (2.25")	$Q_2 = 10.52$ cfs
25-Year (4.00")	$Q_{25} = 19.19$ cfs

## 5 POST-DEVELOPMENT STORMWATER MANAGEMENT

### A. Post-Developed Hydrologic Conditions

Detailed plans depicting the new construction are included in the construction documents. The project description is provided above in **Section 3**. The post-development hydrologic conditions of the project site are presented in **Attachment F** and compared to the existing conditions in the following **Table 5**.



**Table 5**  
**Comparison of Existing and Proposed Hydrologic Conditions**

Surface Cover Type	Existing Site Pre-Development		Proposed Site Post-Development	
	Area (% of Project Area)	Weighted CN	Area (% of Project Area)	Weighted CN
Pavement, Walks, Drives	1.151 acres (91.9%)	90.03	1.139 acres (90.9%)	89.05
Mowed Lawn, Landscaping	0.102 acres (8.1%)	6.51	0.114 acres (9.1%)	7.31
<b>Total Project Area</b>	1.25 acres	96.54	1.25 acres	96.36

**B. New Storm Drainage**

Portions of the storm runoff from the post developed site (walking surfaces and lawn/landscaped areas) is conveyed to new SMPs (storm water planters) by way of sheetflow. Portions of the roadway storm runoff from the post developed site are collected by catch basins and conveyed to the storm water planters through underground piping. Other areas will be captured by existing or new catch basins and conveyed to combined sewers in the project area.

**C. Run-off Reduction Capture Areas**

The Buffalo Sewer Authority's main objective for this project was to reduce run-off flows into the City's combined storm and sewer system to the maximum extent possible. The project includes green infrastructure measures to capture run-off and promote storage in the reservoir course beneath the proposed planters and infiltration to the underlying subgrade. A majority of the areas within the project corridor were designed to capture a 90<sup>th</sup> Percentile storm event. However, there are locations due to site constraints that the 90<sup>th</sup> Percentile storm could not be captured, and only a partial capture of the storm events was achieved. A portion of the run-off from the off-site areas at the M&T Bank Parking lot near Washington and Genesee Streets was also diverted to the proposed green infrastructure. **Table 2** in **Section 1** summarizes the capture areas. It is estimated that over 2.1 million gallons of rain water per year will be captured either by being stored within the green infrastructure measures or by infiltration into the sub surface soils.

#### D. Permanent Storm Water Management Practices (SMPs)

Storm water planters designed as storm water management practices are being constructed as part of the project. There are 17 storm water planters included in the project. The remaining planter (PB-2C) will not include a reservoir course for storm water storage due to underground utility conflict, and is not designed as a storm water management practice. Additional proposed landscaping locations at Remembrance Park and the traffic island at the intersection of Ellicott and Chippewa Streets are intended to increase the pervious area in the corridor; however, they are not akin to the storm water management facilities detailed below. Dimensions of the planters are included in the project plans, Landscaping Details, drawings LD-01 to LD-12. Landscaping Sections are included as drawing no. LS-01 and LS-02.

Each storm water planter is designed to have 2 inches of gravel mulch, a minimum of 18 inches of soil media for sheet flow from proposed sidewalk area, and 3'-6" depth of inches of stone reservoir course. Tree pits within the planters include 24 inches of soil media and 1 foot of sand. The reservoir course contains 6-inch diameter perforated polyvinyl chloride (PVC) piping with cleanout access points at various areas within the planter. Run-off from the roadway drains into a 2-foot by 2-foot green infrastructure catch basin with a 2 foot sump for collecting settled particles. A 6-inch diameter PVC piping conveys flows from the catch basin into the reservoir course for storage and infiltration into the subsoils. An overflow outlet pipe is set at an elevation approximately 2 feet above the bottom of the reservoir course to allow outflows into the downstream system for storm events greater than the storage capacity of the planter. The planters connect into proposed storm sewer piping which convey bypass flows to either the existing storm or combined sewers within project limits. Connections to the existing storm occur at Oak and Elm Street at new manholes, which eventually drain to the City's combined sewer system. The remainder of the planters drains to the 84-inch trunk sewer in the project limits.

The reservoir course is to be constructed with washed no. 2 stone per BSA specifications, and completely wrapped with geotextile filter fabric. Field testing during installation is required to ensure permeability. Refer to the *Green Infrastructure Systems and Landscaping* section of the Proposal Book for additional information.

Perforated and solid PVC piping is to be constructed per NYSDOT requirements (NYSDOT Items 605.1602 and 664.01XX01ER, respectively).

#### E. Post-Developed Discharge Summary

The stormwater runoff rates and volumes were modeled using the SCS unit hydrograph method with HydroCAD Software Solutions. Detailed calculations of the pre- and post-development conditions are included in **Attachments C and F**.

A summary and comparison of the routing results for the 90<sup>th</sup> percentile rainfall, 2-Year and 25-year rainfall events are shown in **Table 6** below. Tables 6a, 6b, 6c, and 6d show discharge

at various site discharge points. At Remembrance Park, a slight increase in the discharge rate occurs due to the slight increase in impervious area. However, the increase is negligible, as it will not result in significant downstream impacts.

**Table 6**  
**Hydrologic Analysis Summary**  
**Comparison of Pre and Post Construction**  
**Conditions**

Rainfall Event	Existing Pre-Development	Post-Developed Discharge
90 <sup>th</sup> percentile (0.85")	$Q_{90} = 3.50$ cfs	$Q_{90} = 1.78$ cfs
2-Year (2.25")	$Q_2 = 10.52$ cfs	$Q_2 = 8.25$ cfs
25-Year (4.00")	$Q_{25} = 19.19$ cfs	$Q_{25} = 18.23$ cfs

**Table 6a**  
**Hydrologic Analysis Summary**  
**Comparison of Pre and Post Construction**  
**Conditions**  
**Oak Street 24" RCP Sewer**

Rainfall Event	Existing Pre-Development	Post-Developed Discharge
90 <sup>th</sup> percentile (0.85")	$Q_{90} = 0.92$ cfs	$Q_{90} = 0.46$ cfs
2-Year (2.25")	$Q_2 = 2.69$ cfs	$Q_2 = 1.76$ cfs
25-Year (4.00")	$Q_{25} = 4.85$ cfs	$Q_{25} = 3.98$ cfs

**Table 6b**  
**Hydrologic Analysis Summary**  
**Comparison of Pre and Post Construction**  
**Conditions**  
**Elm Street 30" RCP Sewer**

Rainfall Event	Existing Pre-Development	Post-Developed Discharge
90 <sup>th</sup> percentile (0.85")	$Q_{90} = 0.61 \text{ cfs}$	$Q_{90} = 0.38 \text{ cfs}$
2-Year (2.25")	$Q_2 = 1.79 \text{ cfs}$	$Q_2 = 1.43 \text{ cfs}$
25-Year (4.00")	$Q_{25} = 3.30 \text{ cfs}$	$Q_{25} = 3.30 \text{ cfs}$

**Table 6c**  
**Hydrologic Analysis Summary**  
**Comparison of Pre Construction**  
**Conditions**  
**Genesee Street 84" Sewer**

Rainfall Event	Existing Pre-Development	Post-Developed Discharge
90 <sup>th</sup> percentile (0.85")	$Q_{90} = 1.86 \text{ cfs}$	$Q_{90} = 0.79 \text{ cfs}$
2-Year (2.25")	$Q_2 = 5.53 \text{ cfs}$	$Q_2 = 4.51 \text{ cfs}$
25-Year (4.00")	$Q_{25} = 10.02 \text{ cfs}$	$Q_{25} = 9.89 \text{ cfs}$

Table 6d  
Hydrologic Analysis Summary  
Comparison of Pre Construction  
Conditions  
Remembrance Park

Rainfall Event	Existing Pre-Development	Post-Developed Discharge
90 <sup>th</sup> percentile (0.85")	$Q_{90} = 0.11$ cfs	$Q_{90} = 0.15$ cfs
2-Year (2.25")	$Q_2 = 0.51$ cfs	$Q_2 = 0.55$ cfs
25-Year (4.00")	$Q_{25} = 1.02$ cfs	$Q_{25} = 1.06$ cfs

F. Post-Construction Maintenance Requirements

The permanent SMPs incorporated into this project require periodic maintenance to assure efficient function of the measures. During construction, the contractor is responsible for general maintenance of the site, including all SMPs. The contractor is also responsible for a two year establishment period following construction per the green infrastructure specifications included in the project manual. The city maintenance staff will be responsible for maintaining all sewer infrastructure (i.e. piping, catch basins, clean outs, etc.) following the establishment period.

The property owners at each SMP location remain responsible for basic maintenance of their property within the right of way, including litter and snow removal. To help ensure long term plant health, the BSA will also provide a plant maintenance guide and technical support for landowners. The agreement letter which was required to be signed by each affected property owner in the corridor can be found in **Attachment E**.

Long-term maintenance needs of this site include the annual removal of accumulated sediments from the storm system and the SMPs to maintain their capacity and prevent downstream sedimentation. The post-construction maintenance plan is included in **Attachment E**.

## 6 POLLUTION PREVENTION MEASURES DURING CONSTRUCTION

The temporary Erosion and Sediment Control (ESC) procedures are outlined in the contract documents on the general notes drawing, GN-01 with specifications for drainage structure inlet control included in the Proposal Book Special Specifications Section.

### A. Solid Waste Control

According to the *General Conditions* section of the Proposal Book, the contractor is required to remove all dirt, rubbish, and waste material resulting from the Contractor's operations at a minimum of once a week. At the completion of work, the site is to be left clean, free from obstructions.

### B. Liquid Storage

The contractor shall store all liquid materials in a manner that prevents leaching and accidental spillage. Storm water run-off that is contaminated with fuels, oils, lubricants or other contaminants shall not be allowed to discharge into any natural or manmade drainage facilities on or off the site.

### C. Critical Erosion Control Areas

Based on the existing topography and drainage patterns, the critical erosion control areas are identified as follows:

1. Construction Vehicle Access Locations: Access to the site will be over milled or existing pavements. Therefore, erosion and tracking of sediment should not be an issue, provided the contractor controls the dust between milling and paving operations, which is a required element.
2. Slopes: All working slopes are to be as flat as practicable, and have been designed to be fairly flat. A mounded landscaped area is part of the project work at the traffic island at Ellicott and Chippewa Streets, which will have a maximum grade of 3 horizontal to 1 vertical. The proposed final grading is included within the Contract Documents on drawing numbers TS-01 to TS-03, MT-06 to MT-08, PR-01 to PR-04, and IG-01 to IG-04.

### D. Erosion and Sedimentation Control Measures

1. Drainage Structure Inlet Protection: Storm inlet sediment trapping measures are specified within the *Special Specifications* section of the Proposal Book.

E. Inspection and Maintenance

All erosion and sedimentation control measures shall be continuously monitored for performance and maintained by the Contractor as instructed on the General Notes drawing, GN-01. The Engineer may add additional measures at any time during construction as required.

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**ATTACHMENT A**



This is a detailed street map of the University City area in St. Louis, Missouri. The map shows a grid of streets with several major thoroughfares highlighted in red. Key streets include Main, Elm, Michigan, Mulberry, Lemon, Peach, Genesee, Jefferson, Timon, Sherman, Herman, Strauss, Fillmore, and Clark. The University City High School campus is prominently featured in the upper right quadrant, with its main building and surrounding grounds clearly marked. Other notable landmarks include St. Mary's High School, St. Boniface Hospital, the University City Community Center, and the University City Fire Station. The map also shows various smaller streets, parks, and public facilities. The orientation is with North at the top.

SHEET:

City of Buffalo Sewer Authority

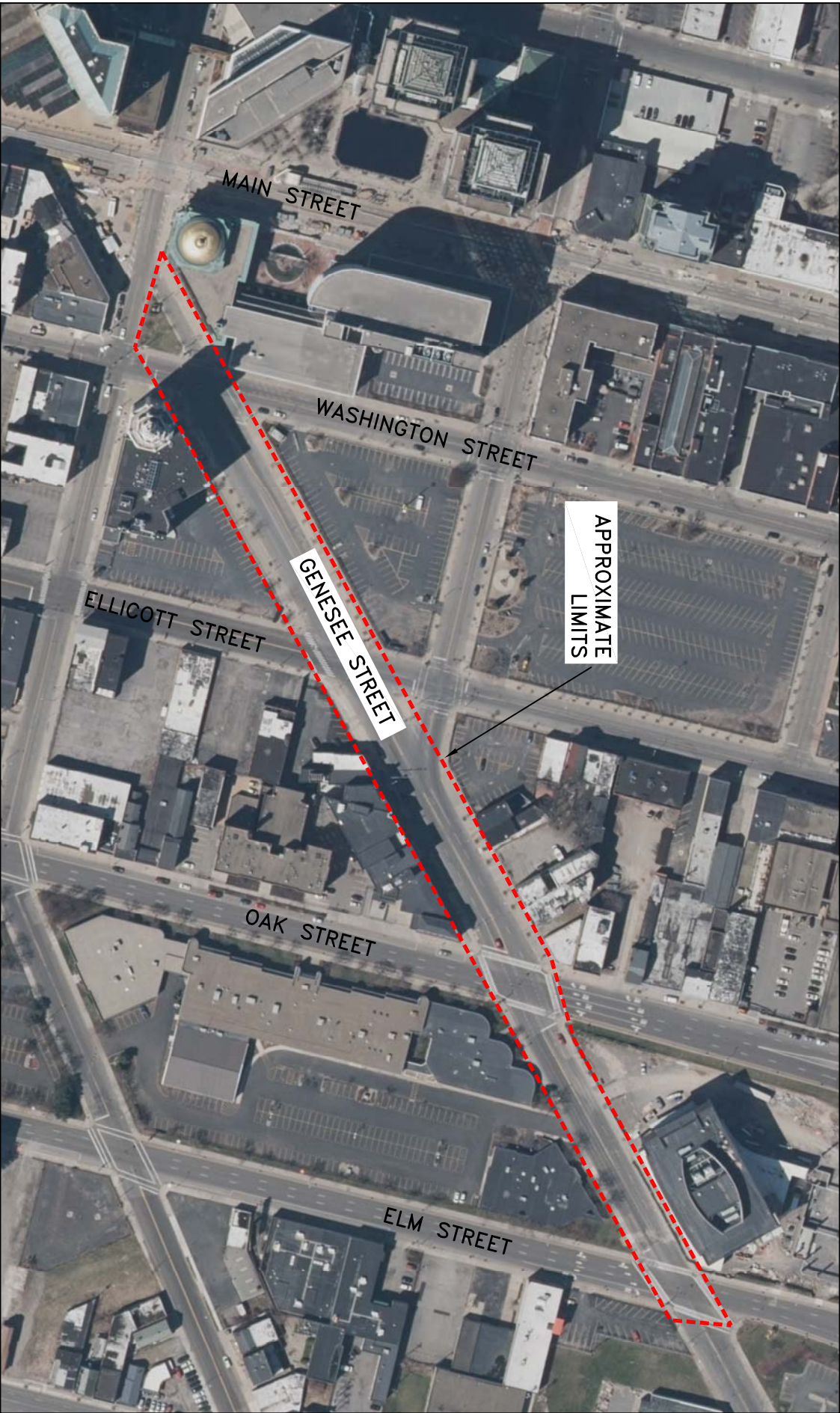
Figure 1  
USGS Quad  
Buffalo, NY



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PROJECT:

Final Green Calculations Summary Report  
Genesee Street Gateway Project  
City of Buffalo Sewer Authority

TITLE:

Figure 2  
Aerial Photo  
Buffalo, NY

SHEET:

2

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& ENGINEERING



DATE: 04/27/15  
BY: KJW  
SCALE: N.T.S.  
PAGE: 1 OF 1





Map Unit Symbol & Name

Ud Urban Land



PROJECT:

Final Green Calculation Summary Report  
Genesee Street Gateway Project  
City of Buffalo Sewer Authority

TITLE:

Figure 3  
NRCS Soil  
Buffalo, NY

SHEET:

3

**WATTS**  
ARCHITECTURE  
& ENGINEERING



DATE:  
4/27/15

BY:  
KJW

SCALE:  
N.T.S.

PAGE:  
1 OF 1

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USER = Kristopher J. Winkler

DESIGN SUPERVISOR J. BIDELL

JOB MANAGER P. GALBO

DESIGN

CHECK

DRAFTING

CHECK

PROJECT MANAGER P. GALBO

AFFIX SEAL:  
ON: 4 / 21 / 2015

ALTERED BY:  
ON:

AS-BUILT REVISIONS  
DESCRIPTION OF ALTERATIONS:

GENESEE STREET GATEWAY PROJECT

WASHINGTON STREET TO ELM STREET

CITY OF BUFFALO

ERIE COUNTY, NEW YORK

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR, TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT, OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

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CONTRACT NO.

WATTS



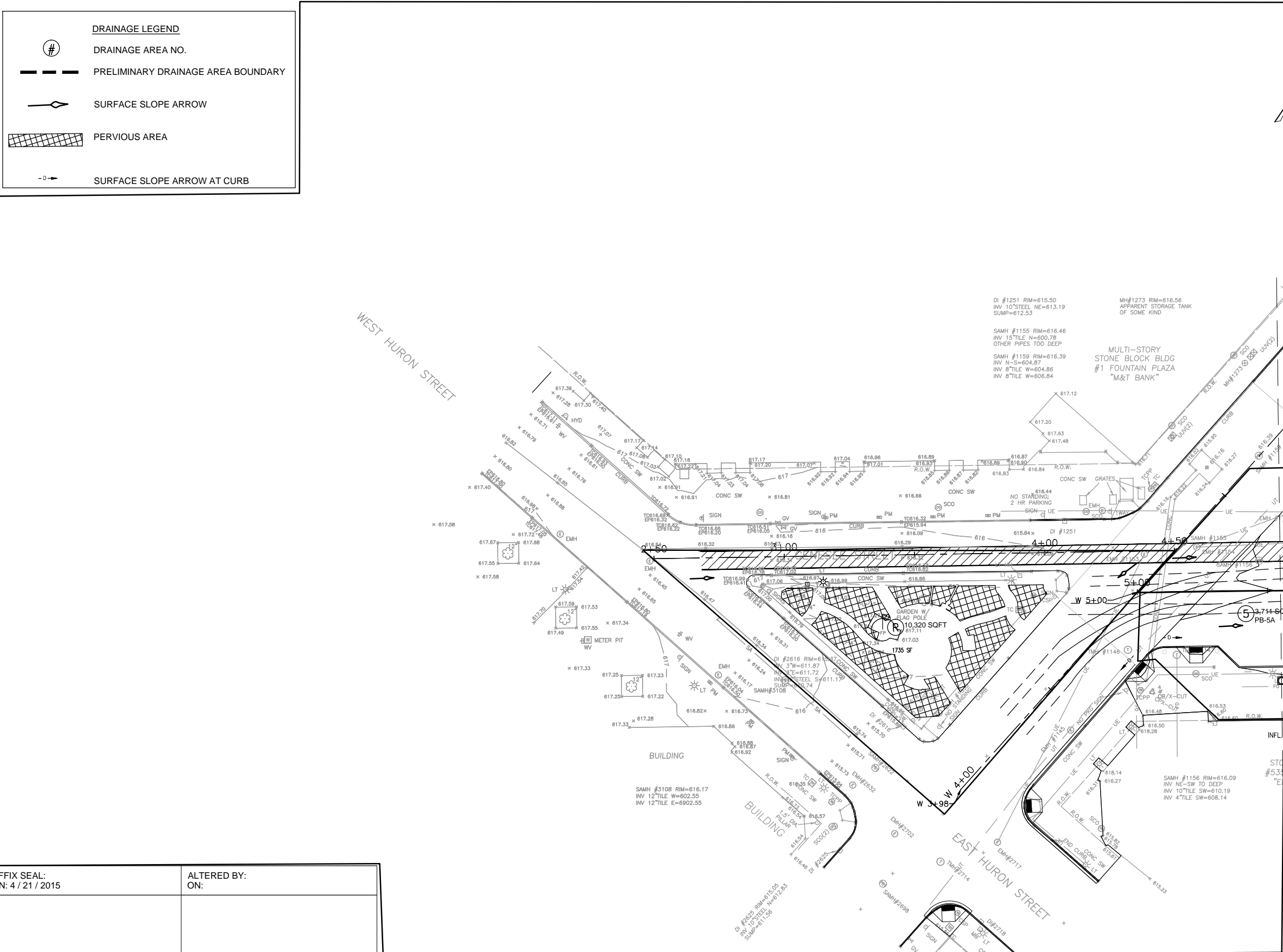
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STREETSCAPE PROJECT  
PRELIMINARY DRAINAGE AREAS PLAN  
STATION 5+00 TO 8+50

DRAWING NO. PL-01

SHEET NO.

DEPARTMENT OF PUBLIC WORKS, PARKS AND STREETS

DOCUMENT NAME: DRAINAGE AREAS.DWG



MATCHLINE STA. 8+50 SEE PL-02





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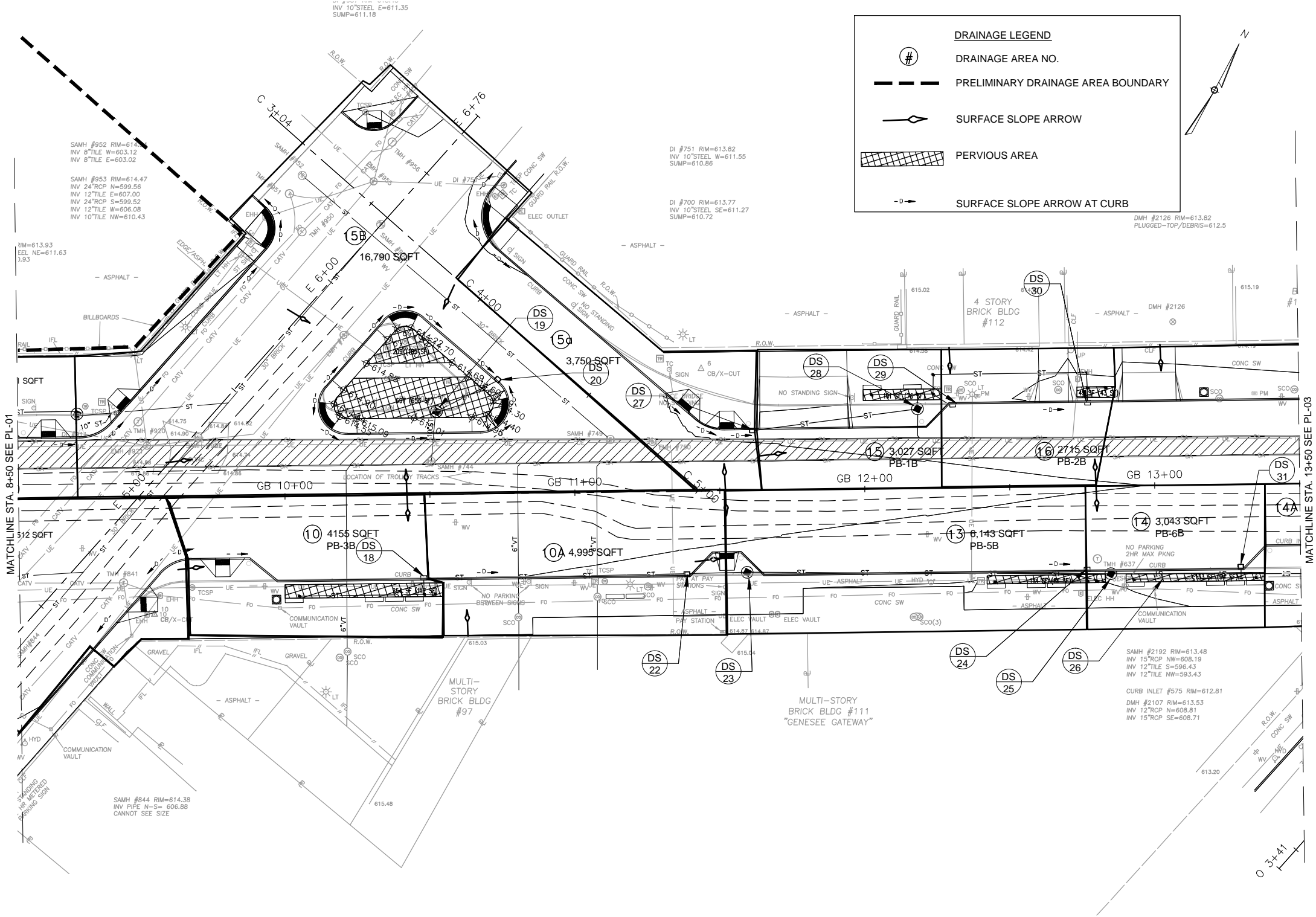
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WASHINGTON STREET TO ELM STREET  
  
CITY OF BUFFALO  
ERIE COUNTY, NEW YORK

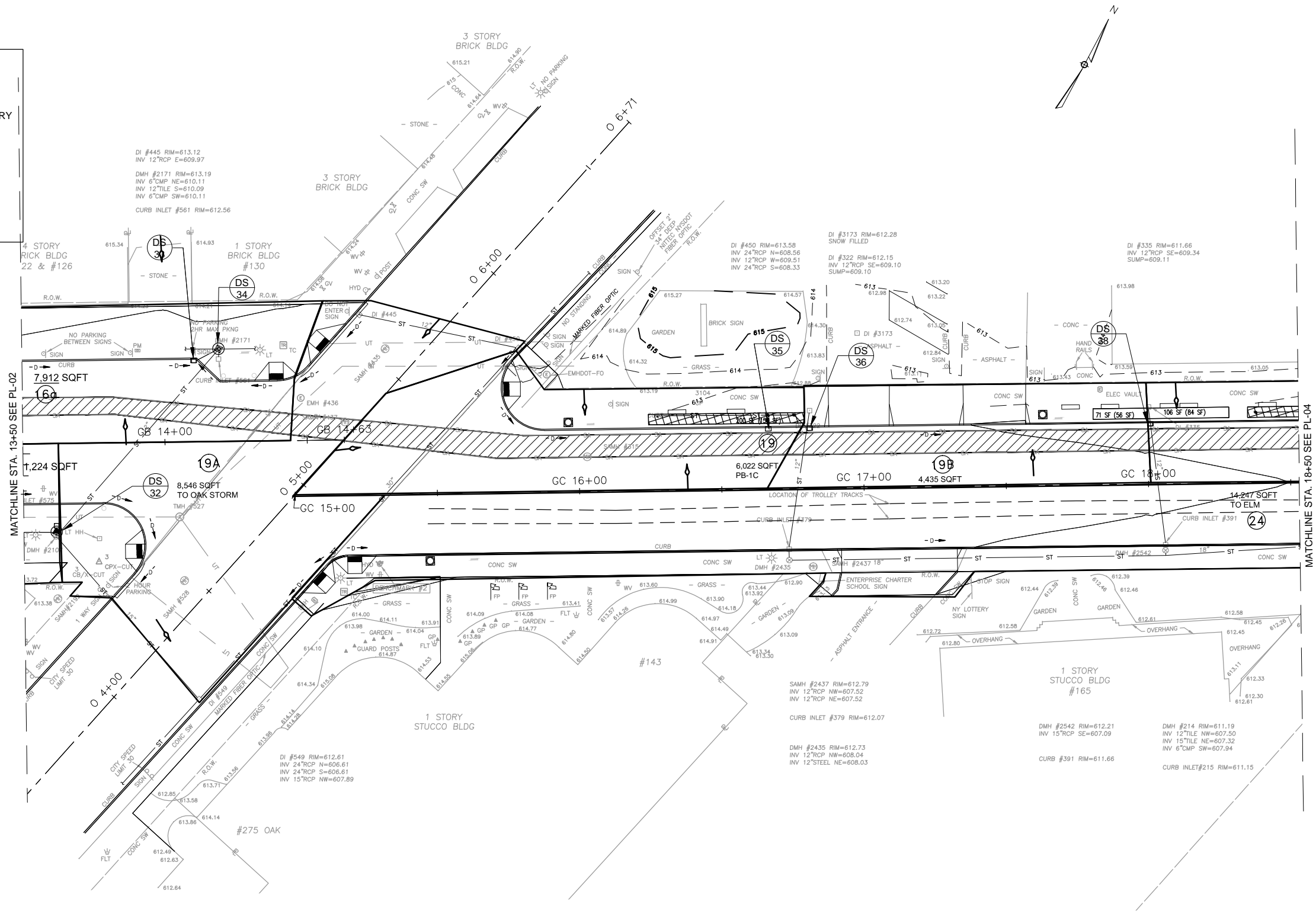
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GENESEE STREET GATEWAY  
STREETSCAPE PROJECT  
PRELIMINARY DRAINAGE AREAS PLAN  
STATION 8+50 TO 13+50

CONTRACT NO. WATTS  
DRAWING NO. PL-03  
SHEET NO.

DEPARTMENT OF PUBLIC WORKS, PARKS AND STREETS  
DOCUMENT NAME: DRAINAGE AREAS.DWG





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			CITY OF BUFFALO		GENESEE STREET GATEWAY STREETSCAPE PROJECT PRELIMINARY DRAINAGE AREAS PLAN STATION 13+50 TO 18+50	DRAWING NO.	PL-04	
			ERIE COUNTY, NEW YORK			SHEET NO.		
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		DOCUMENT NAME: DRAINAGE AREAS.DWG						

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JOB MANAGER P. GALBO

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PROJECT MANAGER P. GALBO

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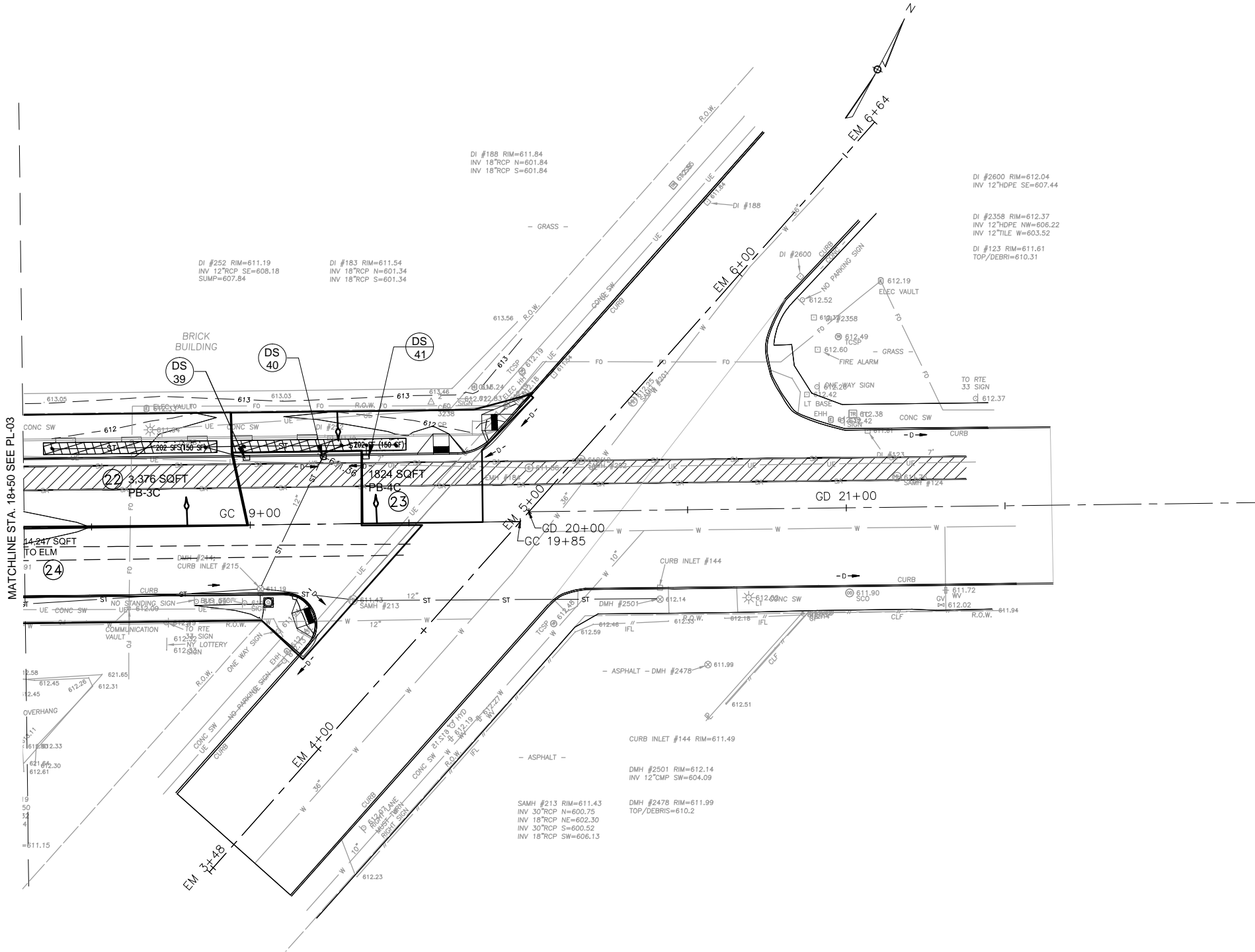
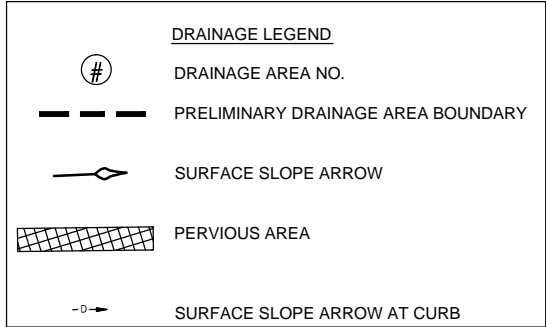
GENESEE STREET GATEWAY PROJECT  
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CITY OF BUFFALO  
ERIE COUNTY, NEW YORK

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STREETSCAPE PROJECT  
PRELIMINARY DRAINAGE AREAS PLAN  
STATION 18+50 TO 21+73

CONTRACT NO. WATTS  
DRAWING NO. PL-05  
SHEET NO.

DEPARTMENT OF PUBLIC WORKS, PARKS AND STREETS  
DOCUMENT NAME: DRAINAGE AREAS.DWG





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DESIGN SUPERVISOR J. BIDELL      JOB MANAGER P. GALBO      DESIGN      CHECK      DRAFTING      CHECK      PROJECT MANAGER P. GALBO

DRAINAGE LEGEND

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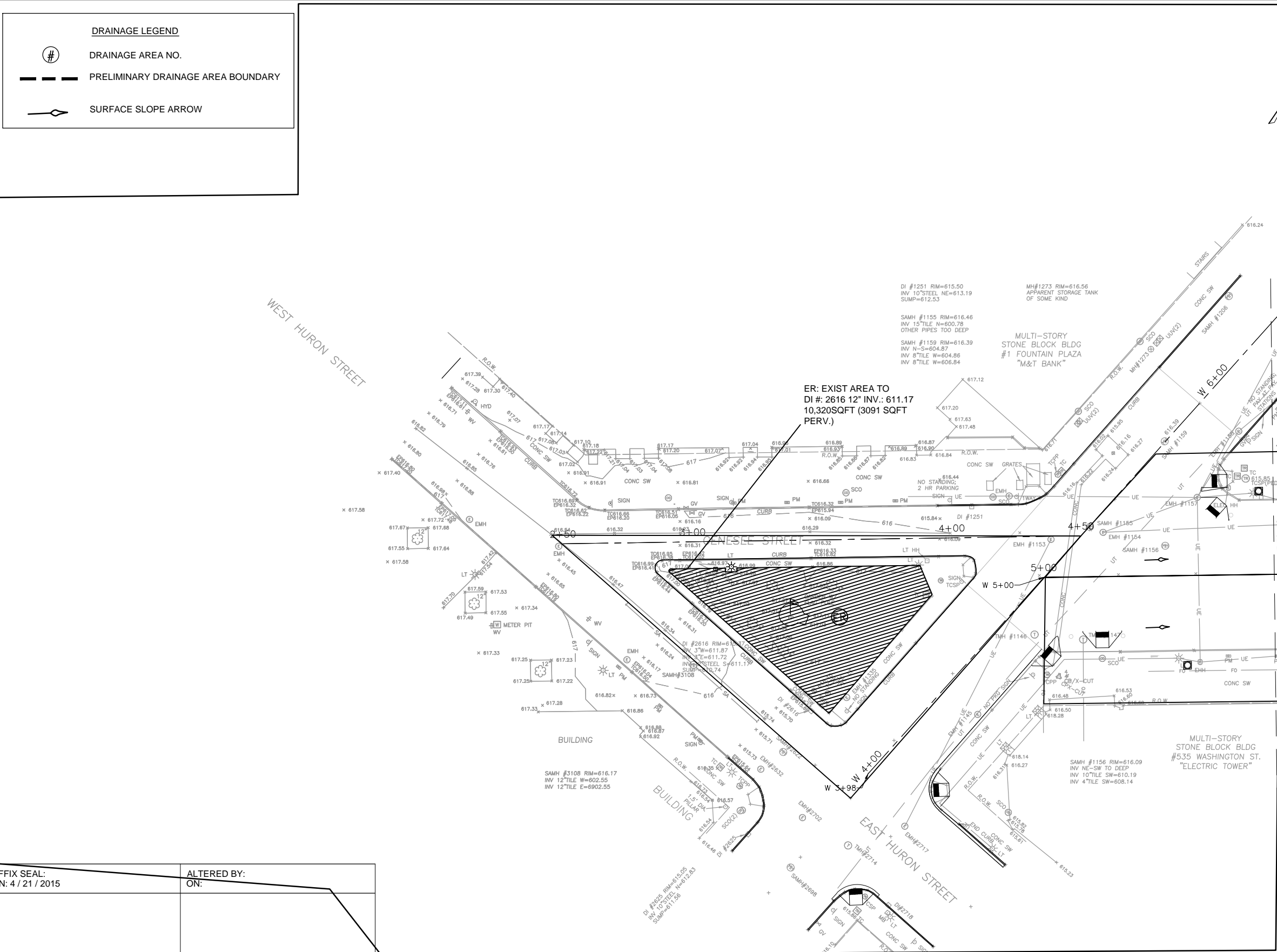
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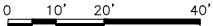
PRELIMINARY DRAINAGE AREA BOUNDARY

→

SURFACE SLOPE ARROW



MATCHLINE STA. 6+50 SEE PL-02



AFFIX SEAL: ON: 4 / 21 / 2015	ALTERED BY: ON:

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DESCRIPTION OF ALTERATIONS:

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WASHINGTON STREET TO ELM STREET  
  
CITY OF BUFFALO  
ERIE COUNTY, NEW YORK

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ALL DIMENSIONS IN FT UNLESS OTHERWISE NOTED  
  
GENESEE STREET GATEWAY  
STREETSCAPE PROJECT  
EXISTING DRAINAGE AREAS PLAN

CONTRACT NO.      WATTS  
  
DRAWING NO.      E-01  
SHEET NO.

DEPARTMENT OF PUBLIC WORKS, PARKS AND STREETS  
DOCUMENT NAME: DRAINAGE AREAS.DWG

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USER = Kristopher J. Winkler

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JOB MANAGER P. GALBO  
DESIGN  
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DRAFTING  
CHECK  
PROJECT MANAGER P. GALBO

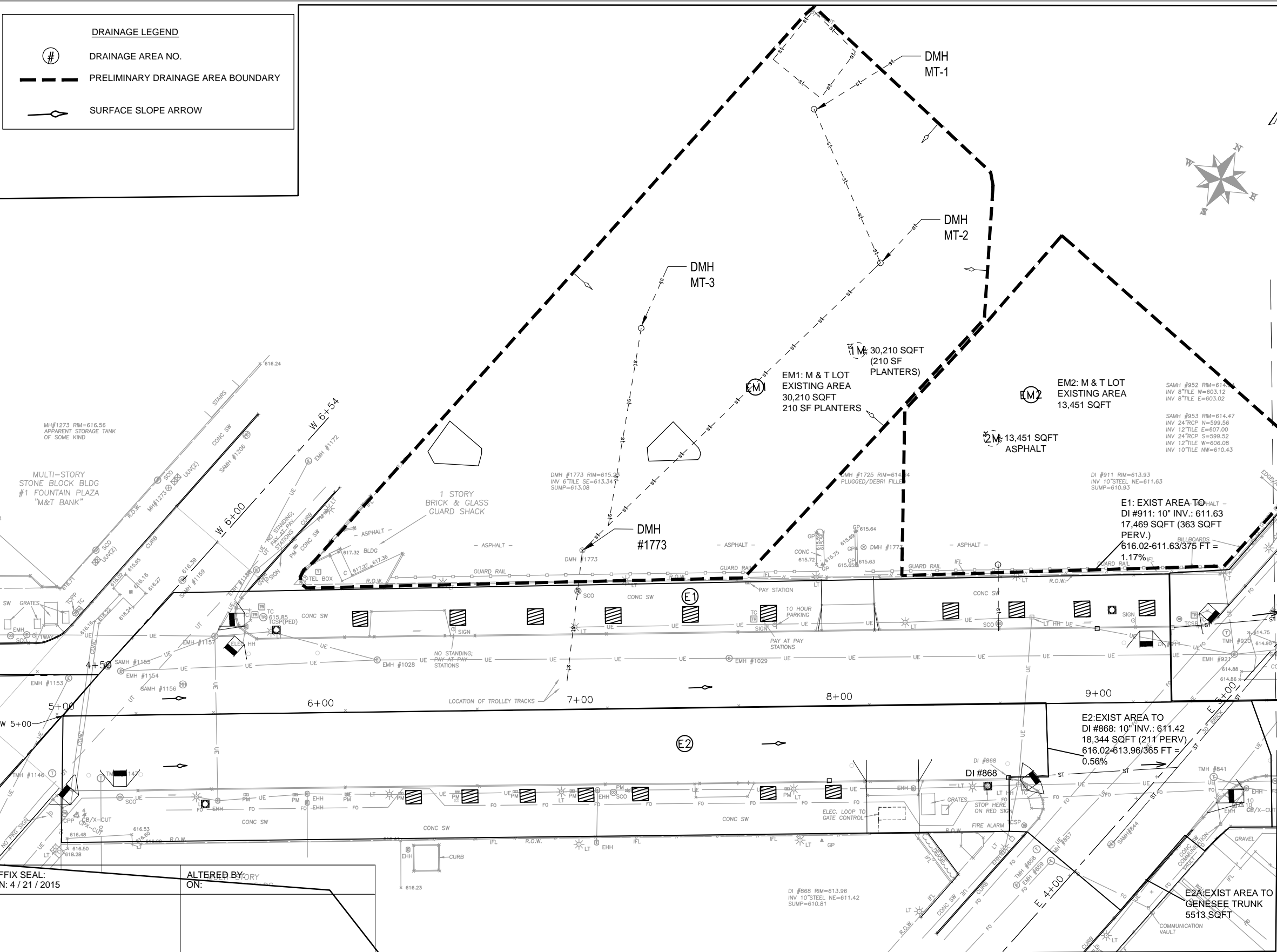
DRAINAGE LEGEND

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DRAINAGE AREA NO.

PRELIMINARY DRAINAGE AREA BOUNDARY

SURFACE SLOPE ARROW



AFFIX SEAL:  
ON: 4 / 21 / 2015

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ON:

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DESCRIPTION OF ALTERATIONS:

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WASHINGTON STREET TO ELM STREET  
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CONTRACT NO. WATTS

GENESEE STREET GATEWAY  
STREETSCAPE PROJECT  
EXISTING DRAINAGE AREAS PLAN

DRAWING NO. E-02

SHEET NO.

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DESIGN SUPERVISOR J. BIDELL JOB MANAGER P. GALBO DESIGN P. GALBO CHECK CHECK DRAFTING CHECK PROJECT MANAGER P. GALBO

#

DRAINAGE AREA NO.

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PRELIMINARY DRAINAGE AREA BOUNDARY

SURFACE SLOPE ARROW

DRAINAGE LEGEND

AS-BUILT REVISIONS  
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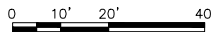
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WASHINGTON STREET TO ELM STREET  
  
CITY OF BUFFALO  
ERIE COUNTY, NEW YORK

ALL DIMENSIONS IN FT UNLESS OTHERWISE NOTED  
  
GENESEE STREET GATEWAY  
STREETSCAPE PROJECT  
EXISTING DRAINAGE AREAS PLAN

CONTRACT NO. WATTS  
DRAWING NO. E-03  
SHEET NO.

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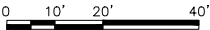
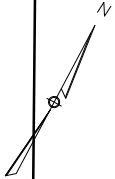
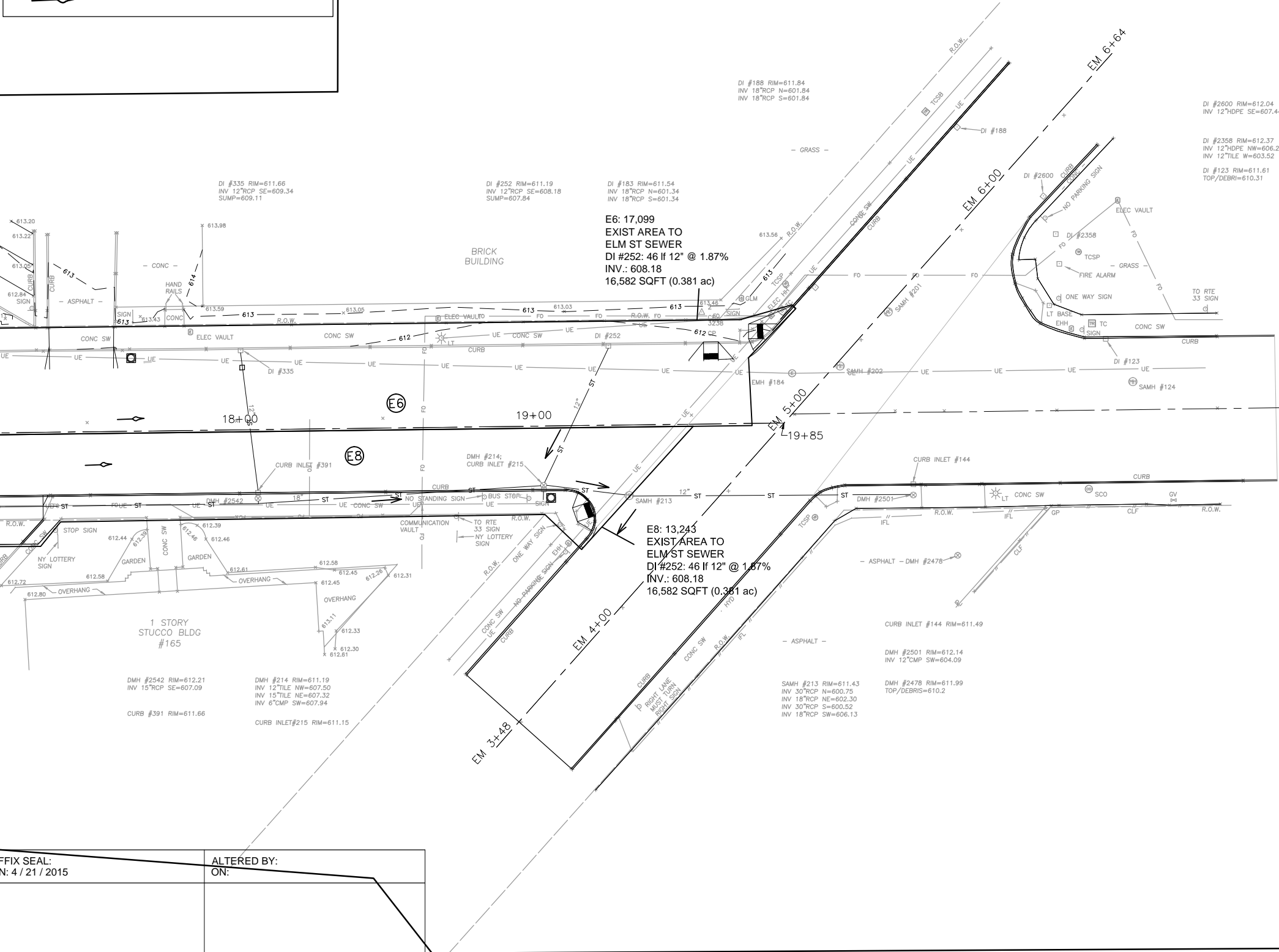
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JOB MANAGER P. GALBO  
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PROJECT MANAGER P. GALBO

**DRAINAGE LEGEND**

 DRAINAGE AREA NO.

 PRELIMINARY DRAINAGE AREA BOUNDARY

 SURFACE SLOPE ARROW



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DESCRIPTION OF ALTERATIONS:

GENESEE STREET GATEWAY PROJECT  
WASHINGTON STREET TO ELM STREET  
CITY OF BUFFALO  
ERIE COUNTY, NEW YORK

ALL DIMENSIONS IN ft UNLESS OTHERWISE NOTED

GENESEE STREET GATEWAY  
STREETSCAPE PROJECT  
EXISTING DRAINAGE AREAS PLAN

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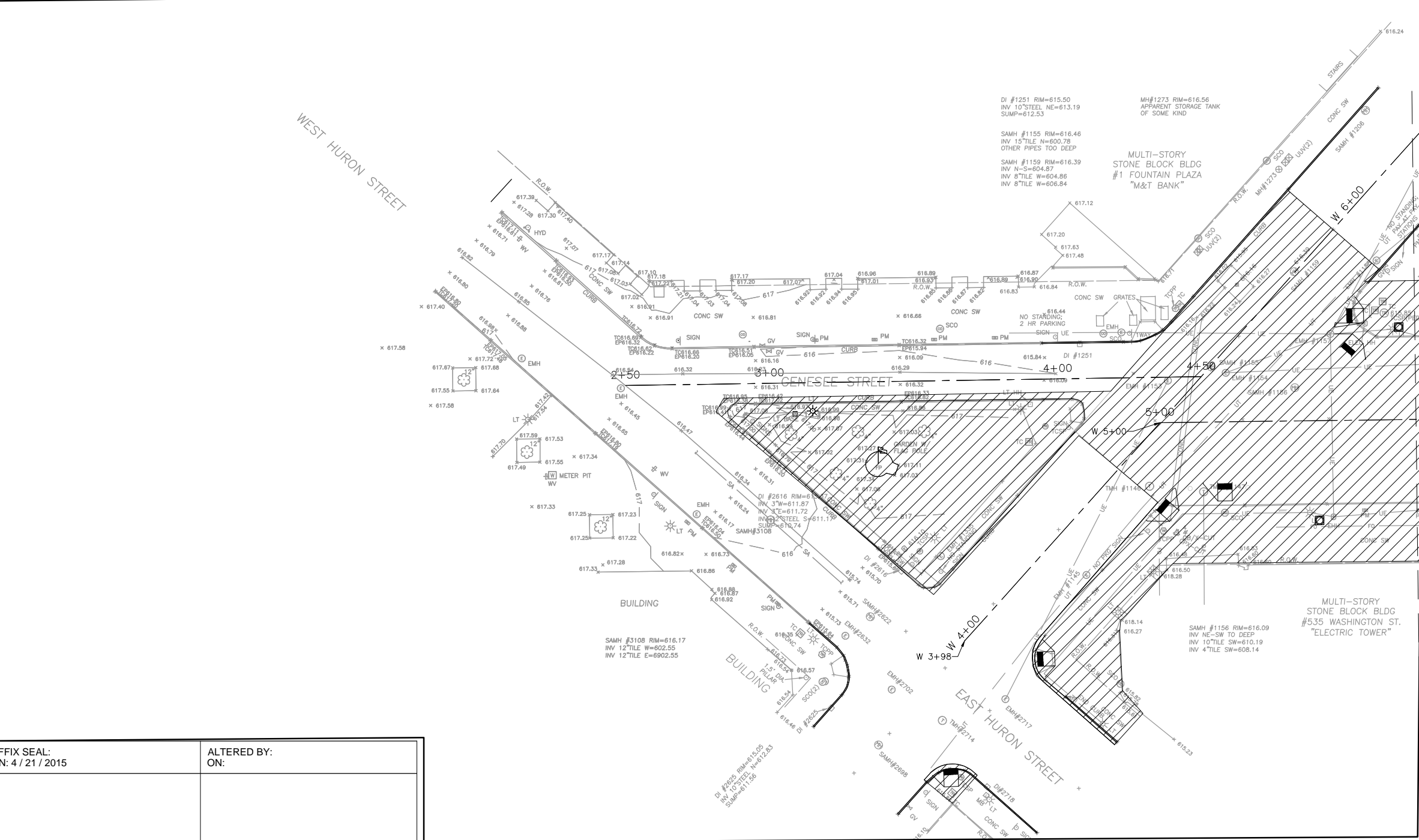
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LEGEND

PROJECT AREA



MATCHLINE SEE PA-02

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AS-BUILT REVISIONS DESCRIPTION OF ALTERATIONS:	GENESEE STREET GATEWAY PROJECT
	WASHINGTON STREET TO ELM STREET
	CITY OF BUFFALO
	ERIE COUNTY, NEW YORK

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	SHEET NO.	OF 97

DEPARTMENT OF PUBLIC WORKS, PARKS AND STREETS  
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DESIGN SUPERVISOR J. BIDELL

JOB MANAGER P. GALBO

DESIGN

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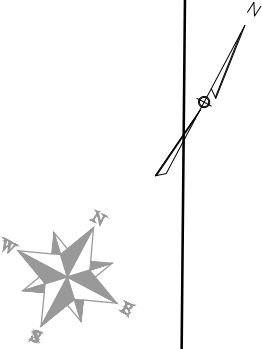
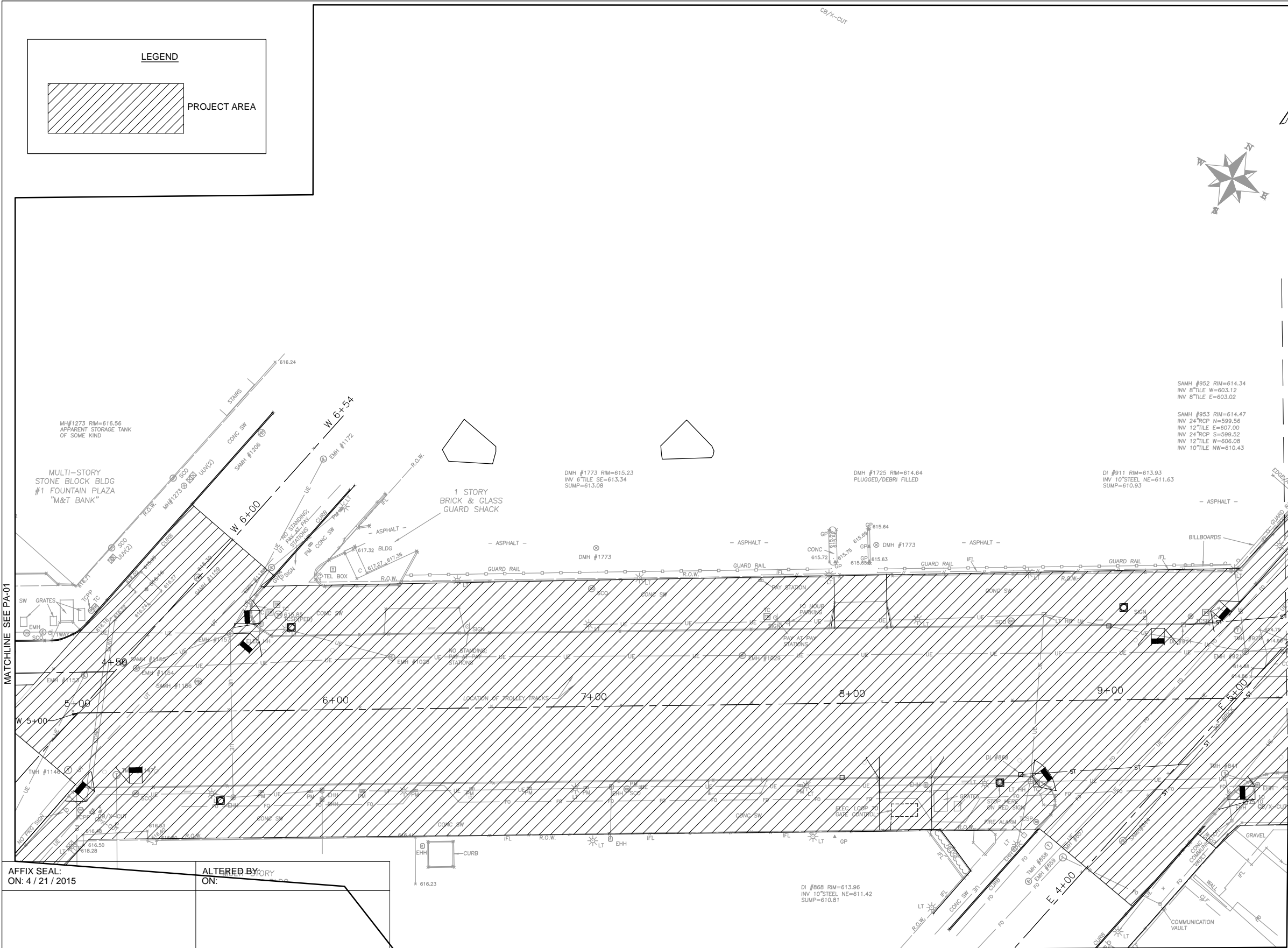
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CHECK

PROJECT MANAGER P. GALBO

LEGEND

PROJECT AREA



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INV 24"ROP N=599.58  
INV 8" TILE E=603.02

SAMH #953 RIM=614.47  
INV 24"ROP N=599.58  
INV 12" TILE E=607.00  
INV 24"ROP S=599.52  
INV 12" TILE W=606.08  
INV 10" TILE NW=610.43

MATCHLINE SEE PA-03

AFFIX SEAL:  
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GENESEE STREET GATEWAY PROJECT  
WASHINGTON STREET TO ELM STREET  
CITY OF BUFFALO  
ERIE COUNTY, NEW YORK

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GENESEE STREET GATEWAY  
STREETSCAPE PROJECT  
PROJECT AREA PLAN

CONTRACT NO. WATTS

DRAWING NO. PA-02

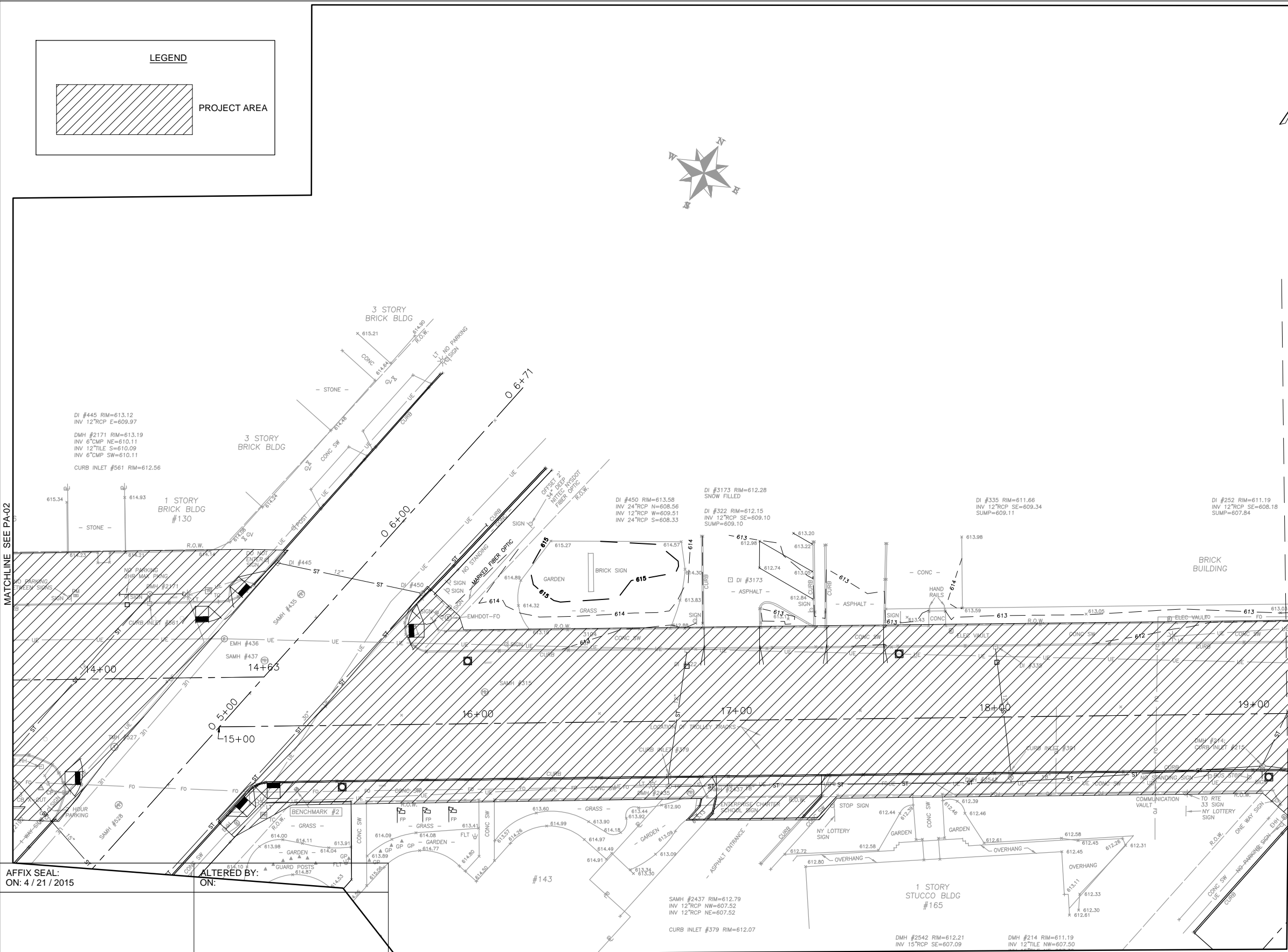
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JOB MANAGER P. GALBO  
DESIGN P. GALBO  
CHECK P. GALBO  
DRAFTING P. GALBO  
CHECK P. GALBO  
PROJECT MANAGER P. GALBO



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ALTERED BY:  
ON:

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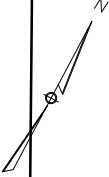
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GENESEE STREET GATEWAY STREETSCAPE PROJECT PROJECT AREA PLAN		DRAWING NO.	PA-03
		SHEET NO.	OF 97

DEPARTMENT OF PUBLIC WORKS, PARKS AND STREETS  
DOCUMENT NAME: DRAINAGE AREAS.DWG





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**ATTACHMENT B**



**Contract  
Drilling  
and  
Testing**

**SITE INVESTIGATION REPORT**

**GENESEE STREET INFRASTRUCTURE PROJECT  
BUFFALO, NEW YORK**



**CORPORATE/  
BUFFALO OFFICE**

5167 South Park Avenue  
Hamburg, NY 14075  
Phone: (716) 649-8110  
Fax: (716) 649-8051



**ALBANY OFFICE**

PO Box 2199  
Ballston Spa, NY 12020  
  
5 Knabner Road  
Mechanicville, NY 12118  
Phone: (518) 899-7491  
Fax: (518) 899-7496



**CORTLAND OFFICE**

60 Miller Street  
Cortland, NY 13045  
Phone: (607) 758-7182  
Fax: (607) 758-7188



**ROCHESTER OFFICE**

535 Summit Point Drive  
Henrietta, NY 14467  
Phone: (585) 359-2730  
Fax: (585) 359-9668

PREPARED FOR:

**WATTS ARCHITECTURE AND ENGINEERING P.C.  
95 PERRY STREET  
SUITE 300  
BUFFALO, NY 14203**

PREPARED BY:

**SJB SERVICES, INC.  
JANUARY 2015**

**SJB # BD-14-190**

**SITE INVESTIGATION REPORT**

**GENESEE STREET INFRASTRUCTURE PROJECT**

**BUFFALO, NEW YORK**

***I. INTRODUCTION***

SJB Services, Inc. drilling personnel were present at various locations along Genesee Street between Washington and Elm Streets in the city of Buffalo, New York on December 22<sup>nd</sup> through 24<sup>th</sup>, 2014 to perform soil borings and infiltration tests for proposed infrastructure improvements. The work was requested and authorized by Mr. Phillip Galbo P.E. of Watts Engineering and Architecture P.C., 95 Perry Street, Suite 300, Buffalo, New York 14203.

A total of ten (10) test borings and subsequent infiltration tests were completed at the site ranging in depth from 9.0 feet to 12.0 feet below existing ground surface. The location of each of these borings was provided to SJB Services, Inc. during a site visit with Mr. Kristopher Winkler P.E. of Watts.

***II. METHOD OF INVESTIGATION***

Initially, a portable "Core-Bore" coring machine equipped with a 6-inch diamond thinwall core barrel was utilized to advance through the concrete sidewalk present at the boring locations. Standard drilling techniques were then employed to advance 2 1/4" inside diameter hollow stem augers through the overburden soils beneath the sidewalk. Representative soil samples were obtained throughout the depth of the boring by driving a 2- inch diameter (O.D.) split spoon sampler into the undisturbed soils beneath the augers, utilizing a 140 pound drop hammer freely falling 30- inches. Data regarding the compaction and consistency of the overburden soils are related to the penetration of the split spoon, in accordance with the "Standard Penetration Test" (ASTM D-1586).

The borings were initially drilled and sampled to the infiltration testing depth (5-feet to 8-feet below existing grade). A 4-inch diameter section of PVC pipe was then placed in the borehole, and presoaked with water in preparation for the infiltration test. Upon completion of the infiltration testing, the soils were sampled through the PVC pipe to a depth of 4-feet below the infiltration test elevation. All test holes were then backfilled and grouted to grade upon completion.

The recovered samples were classified in the field by our drill foreman and transported to our Buffalo, New York office where visual classification was performed by a Geologist. Included in this report is a "General Information Key to Subsurface Logs" as a supplement to explain the terms, symbols and definitions, which are utilized in our visual classifications.

### **III. GENERAL SITE CONDITIONS**

In general, the subsurface conditions encountered at the site consisted of variable fills underlain by silty sands and silty clay soils to the depths investigated.

Please consult the attached boring logs for more specific details such as "N" values, soil classification, and water level conditions.

Included with this report are the results of the infiltration tests performed at the boring locations.

The stratification lines shown on the boring logs are approximate, where as in-situ the changes between strata may be more gradual. The subsurface information represented by the attached logs indicates the conditions present only at the location or depth of each sample taken at the borehole specified.

The following pages contain data recorded in the field by our drill foreman. The data, along with the recovered soil samples and their visual classification constitutes the subsurface investigation report.

All recovered samples will be retained for approximately sixty (60) days, at which time the samples will be destroyed unless directed otherwise.

It has been a pleasure working with you on this project. If you have any questions or wish to discuss this report further, please contact our office at any time.

If we can be of further service to you, please let us know. SJB Services, Inc. offers a full range of construction testing services (concrete, asphalt, soil, steel), should you have a need for these items at a later date.

**SJB SERVICES, INC.**

*Frank R. Minnolera Jr. (SD)*

Frank R. Minnolera Jr.  
Staff Geologist

## **BORING LOGS**

## GENERAL INFORMATION & KEY TO SUBSURFACE LOGS

The Subsurface Logs attached to this report present the observations and mechanical data collected by the driller at the site, supplemented by classification of the material removed from the borings as determined through visual identification by technicians in the laboratory. It is cautioned that the materials removed from the borings represent only a fraction of the total volume of the deposits at the site and may not necessarily be representative of the subsurface condition between adjacent borings or between the sampled intervals. The data presented of the Subsurface Logs together with the recovered samples provide a basis for evaluating the character of the subsurface conditions relative to the project. The evaluation must consider all the recorded details and their procedures to more accurately evaluate the subsurface conditions. Any evaluation of the contents of this report and recovered samples must be performed by qualified professionals. The following information defines some of the procedures and terms used of the Subsurface Logs to describe the conditions encountered, consistent with the numbered identifiers shown on the Key opposite this page.

1. The figures in the Depth column define the scale of the Subsurface Log.
2. The Samples column shows, graphically, the depth range from which a sample was recovered. See Table I for descriptions of the symbols used to represent the various types of samples.
3. The Sample No. is used for identification on sample containers and/or Laboratory Test Reports.
4. Blows on Sampler – shows the results of the “Penetration Test”, recording the number of blows required to drive a split spoon sampler into the soil. The number of blows required for each six inches is recorded. The first 6 inches of penetration is considered a seating drive. The number of blows required for the second and third 6 inches of penetration is termed the penetration resistance,  $N$ .
5. Blows on Casing – Shows the number of blows required to advance the casing a distance of 12 inches. The casing size, hammer weight, and length of drop are noted at the bottom of the Subsurface Log. If the casing is advanced by means other than driving, the method of advancement will be indicated in the Notes column or under the Method of Investigation at the bottom of the Subsurface Log. Alternatively, sample recovery may be shown in this column or other data consistent with the column heading.
6. All recovered soil samples are reviewed in the laboratory by an engineering technician, geologist, or geotechnical engineer, unless noted otherwise. Visual descriptions are made on the basis of a combination of the driller's field descriptions and noted observations together with the sample as received in the laboratory. The method of visual classification is based primarily on the Unified Soil Classification System (ASTM D 2487) with regard to the particle size and plasticity (See Table No. II), and the Unified Soil Classification System group symbols for the soil types are sometimes included with the soil classification. Additionally, the relative portion, by weight, of two or more soil types is described for granular soils in accordance with “Suggested Methods of Test for Identification of Soils” by D.M. Burmister, ASTM Special Technical Publication 479, June 1970. (See Table No. III). Description of the relative soil density or consistency is based upon the penetration records as defined in Table No. IV. The description of the soil moisture is based upon the relative wetness of the soil as recovered and is described as dry, moist, wet, and saturated. Water introduced into the boring either naturally or during drilling may have affected the moisture condition of the recovered sample. Special terms are used as required to describe soil deposition in greater detail; several such terms are listed in Table V. When sampling gravelly soils with a standard two inch diameter split spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter. The presence of boulders and large gravel is sometimes, but not necessarily, detected by an evaluation of the casing and sampler blows or through the “action” of the drill rig as reported by the driller.
7. Rock description is based on review of the recovered rock core and the driller's notes. Frequently used rock classification terms are included in Table VI.
8. The stratification lines represent the approximate boundary between soil types and the transition may be gradual. Solid stratification lines delineate apparent changes in soil type, based upon review of recovered soil samples and the driller's notes. Dashed lines convey a lesser degree of certainty with respect to either a change in soil type or where such change may occur.
9. Miscellaneous observations and procedures noted by the driller are shown in this column, including water level observations. It is important to realize the reliability of the water level observations depends upon the soil type (water does not readily stabilize in a hole through fine grained soils), and that any drill water used to advance the boring may have influenced the observations. The ground water level will fluctuate seasonally, typically. One or more perched or trapped water levels may exist in the ground seasonally. All the available readings should be evaluated. If definite conclusions cannot be made, it is often prudent to examine the conditions more thoroughly through test pit excavations or groundwater observation wells.
10. The length of core run is defined as the length of penetration of the core barrel. Core recovery is the length of core recovered divided by the core run. The RQD (Rock Quality Designation) is the total length of pieces of NX core exceeding 4 inches divided by the core run. The size core barrel used is also noted in the Method of Investigation at the bottom of the Subsurface Log.

DATE \_\_\_\_\_

STARTED \_\_\_\_\_

FINISHED \_\_\_\_\_

SHEET \_\_\_\_\_ OF \_\_\_\_\_



# SJB SERVICES, INC. SUBSURFACE LOG

PROJ. No. \_\_\_\_\_

HOLE No. \_\_\_\_\_

SURF. ELEV. \_\_\_\_\_

G.W. DEPTH \_\_\_\_\_

PROJECT \_\_\_\_\_ LOCATION \_\_\_\_\_

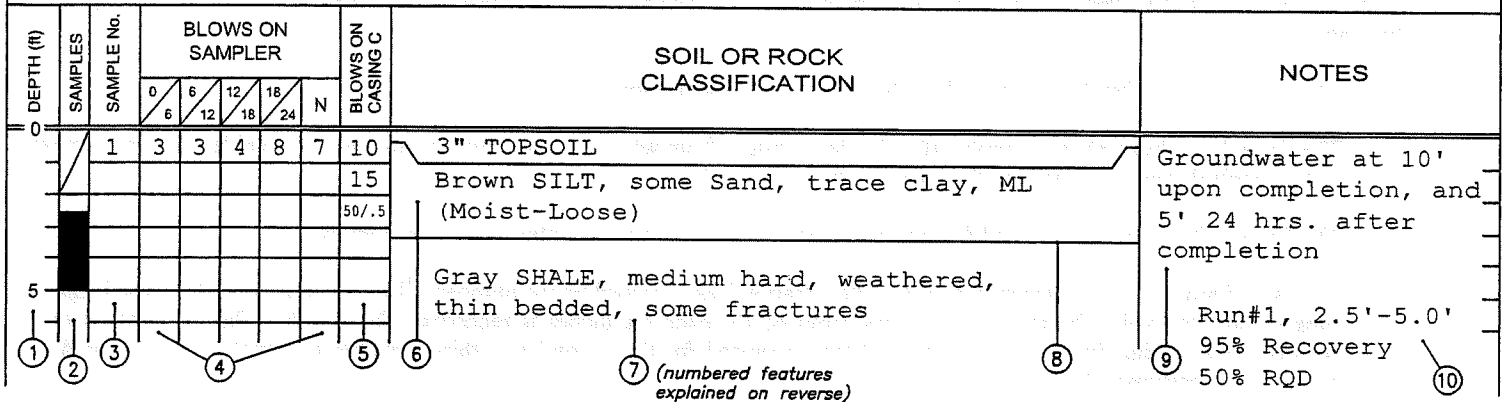


TABLE I

	Split Spoon Sample
	Shelby Tube Sample
	Geoprobe Macro-Core
	Auger or Test Pit Sample
	Rock Core

TABLE II

Identification of soil type is made on basis of an estimate of particle sizes, and in the case of fine grained soils also on basis of plasticity.		
Soil Type	Soil Particle Size	
Boulder	>12"	
Cobble	3" - 12"	
Gravel - Coarse	3" - 3/4"	Coarse Grained (Granular)
- Fine	3/4" - #4	
Sand - Coarse	#4 - #10	
- Medium	#10 - #40	
- Fine	#40 - #200	
Silt - Non Plastic (Granular)	<#200	Fine Grained
Clay - Plastic (Cohesive)		

TABLE III

The following terms are used in classifying soils consisting of mixtures of two or more soil types. The estimate is based on weight of total sample.

Term	Percent of Total Sample
"and"	35 - 50
"some"	20 - 35
"little"	10 - 20
"trace"	less than 10

(When sampling gravelly soils with a standard split spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter.)

TABLE IV

The relative compactness or consistency is described in accordance with the following terms:

Granular Soils		Cohesive Soils	
Term	Blows per Foot, N	Term	Blows per Foot, N
Loose	0 - 4	Very Soft	0 - 2
Loose	4 - 10	Soft	2 - 4
Firm	10 - 30	Medium	4 - 8
Compact	30 - 50	Stiff	8 - 15
Very Compact	>50	Very Stiff	15 - 30
		Hard	>30

(Large particles in the soils will often significantly influence the blows per foot recorded during the penetration test)

TABLE V

<b>Varved</b>	Horizontal uniform layers or seams of soil(s).
<b>Layer</b>	Soil deposit more than 6" thick.
<b>Seam</b>	Soil deposit less than 6" thick.
<b>Parting</b>	Soil deposit less than 1/8" thick.
<b>Laminated</b>	Irregular, horizontal and angled seams and partings of soil(s).

TABLE VI

Rock Classification Term	Meaning	Rock Classification Term	Meaning
Hardness	- Soft - Medium Hard - Hard - Very Hard	Bedding	- Laminated (<1") - Thin Bedded (1" - 4") - Bedded (4" - 12") - Thick Bedded (12" - 36") - Massive (>36")
Weathering	- Very Weathered - Weathered - Sound		Natural breaks in Rock Layers
	Scratched by fingernail Scratched easily by penknife Scratched with difficulty by penknife Cannot be scratched by penknife		(Fracturing refers to natural breaks in the rock oriented at some angle to the rock layers)
	Judged from the relative amounts of disintegration, iron staining, core recovery, clay seams, etc.		





N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist  
 DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X  
 METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist


DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist  
 DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X  
 METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist  
 DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X  
 METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist  
 DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X  
 METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

DATE START <u>12/22/2014</u> FINISH <u>12/23/2014</u> SHEET <u>1</u> OF <u>1</u>	<b>SJB SERVICES, INC.</b> <b>SUBSURFACE LOG</b>		HOLE NO. <u>B-7</u> SURF. ELEV <u>          </u> G.W. DEPTH <u>See Notes</u>					
PROJECT: <u>GENESEE ST GREEN INFRASTRUCTURE PROJECT</u> LOCATION: <u>FRONT OF 111 GENESEE STREET</u> PROJ. NO.: <u>BD-14-190</u> <u>BUFFALO, NEW YORK</u>								
DEPTH FT.	SMPL NO.	BLOWS ON SAMPLER					SOIL OR ROCK CLASSIFICATION	NOTES
		0/6	6/12	12/18	N			
	1	5	8	5	13		ASPHALTIC CONCRETE Gray GRAVEL and f-c Sand (moist, FILL)	Driller notes approx. 2.5" Asphalt
	2	2	4				Brown fine SAND, little Silt (wet, loose, SM)	
		3	3		7			
5	3	3	3				Gray Silty CLAY, tr.sand (moist, stiff, CL)	
	4	5	6					
		7	7		13			
	5	5	4					
		7	8		11			
10							Boring Complete at 9.0'	Driller notes Augering and Sampling to 5' depth, setting 4" PVC infiltration pipe. Infiltration testing then performed and Boring subsequently extended to 9'
15								
20								

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW  
 DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X  
 METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS CLASSIFIED BY: Geologist

METHOD OF INVESTIGATION    ASTM D-1586    USING HOLLOW STEM AUGERS



N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist

DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X

METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

N = NO. BLOWS TO DRIVE 2-INCH SPOON 12-INCHES WITH A 140 LB. PIN WT. FALLING 30-INCHES PER BLOW CLASSIFIED BY: Geologist  
 DRILLER: A. JAKUBCZAK DRILL RIG TYPE : CME-550X  
 METHOD OF INVESTIGATION ASTM D-1586 USING HOLLOW STEM AUGERS

## **INFILTRATION TESTS**



## INFILTRATION TEST DATA SUMMARY

PROJECT: GENESEE ST INFRASTRUCTURE PROJECT  
 LOCATION: GENESEE ST - SOUTH SIDEWALK 75' E OF WASHINGTON  
 PROJECT NO: BD-14-190

### INFILTRATION

TEST POINT: B-1  
 PRESOAK DATE: 12/22/2014  
 PRESOAK TIME: 1056

### TEST DATA

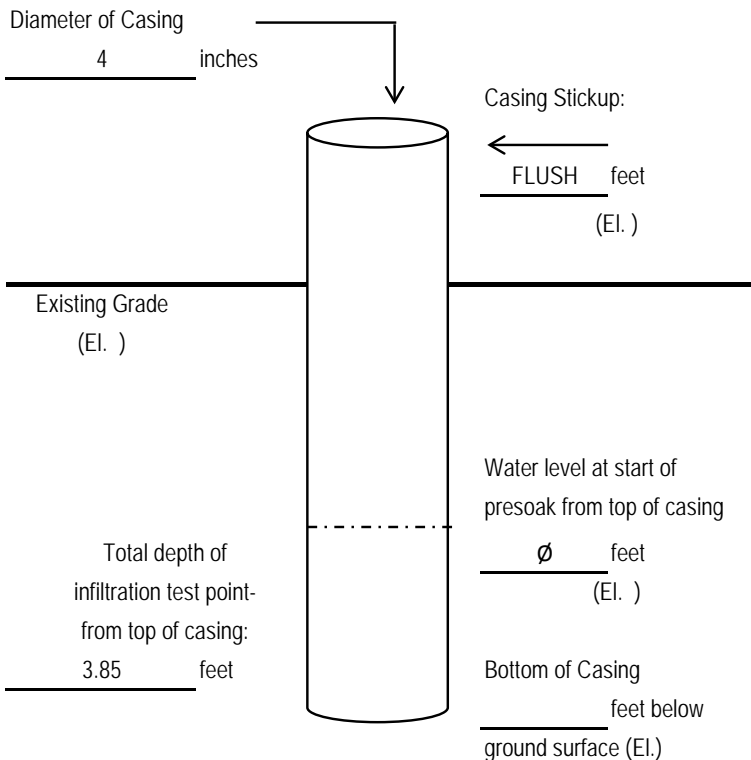
TEST DATE: 12/23/2014  
 START OF TEST TIME: 11:08

IS THERE PRESOAK WATER IN TEST CASING?

YES ☐ NO ☒

IF YES, WHAT DEPTH:

           FEET FROM TOP OF CASING.  
 (El.   ')



RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	11:08				1.90
RUN #1	11:08	12:08	60	0.60	1.90
RUN #2	12:08	13:08	60	0.48	1.80
RUN #3	13:08	14:08	60	0.40	1.82
RUN #4	14:08	15:08	60	0.33	END OF TEST

AVERAGE INFILTRATION RATE 0.45 FEET PER HOUR  
 AVERAGE INFILTRATION RATE 5.4 INCHES PER HOUR

TESTED BY: A. MORSE



## INFILTRATION TEST DATA SUMMARY

PROJECT: GENESEE ST INFRASTRUCTURE PROJECT

LOCATION: GENESEE ST - SOUTH SIDEWALK 75' W OF ELLICOTT

PROJECT NO: BD-14-190

### INFILTRATION

TEST POINT: B-2

PRESOAK DATE: 12/22/2014

PRESOAK TIME: 1200

### TEST DATA

TEST DATE: 12/23/2014

START OF TEST TIME: 11:18

IS THERE PRESOAK WATER IN TEST CASING?

YES ☐ NO ☒

IF YES, WHAT DEPTH:

           FEET FROM TOP OF CASING.  
(El.   ')

Diameter of Casing

4 inches

Existing Grade

(El.   ')

Total depth of  
infiltration test point-  
from top of casing:

3.9 feet

Casing Stickup:

           feet  
GRADE (El.   ')

Water level at start of  
presoak from top of casing

Ø feet  
(El.   ')

Bottom of Casing  
           feet below  
ground surface (El.   ')

RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	11:18				1.88
RUN #1	11:18	12:18	60	0.14	1.82
RUN #2	12:18	13:18	60	0.08	1.85
RUN #3	13:18	14:18	60	0.05	1.90
RUN #4	14:18	15:18	60	0.07	END OF TEST

AVERAGE INFILTRATION RATE 0.08 FEET PER HOUR

AVERAGE INFILTRATION RATE 0.96 INCHES PER HOUR

TESTED BY: A. MORSE



## INFILTRATION TEST DATA SUMMARY

PROJECT: GENESEE ST INFRASTRUCTURE PROJECT

LOCATION: GENESEE ST - NORTH SIDEWALK 35' W OF ELLICOTT

PROJECT NO: BD-14-190

### INFILTRATION

TEST POINT: B-3

PRESOAK DATE: 12/22/2014

PRESOAK TIME: 1400

### TEST DATA

TEST DATE: 12/23/2014

START OF TEST TIME: 10:57

IS THERE PRESOAK WATER IN TEST CASING?

YES ☐ NO ☒

IF YES, WHAT DEPTH:

           FEET FROM TOP OF CASING.  
(El.   ')

Diameter of Casing

4 inches

Existing Grade  
(El.   ')

Total depth of  
infiltration test point-  
from top of casing:  
3.40 feet

Casing Stickup:

           feet  
GRADE (El.   ')

Water level at start of  
presoak from top of casing

Ø feet  
(El.   ')

Bottom of Casing  
           feet below  
ground surface (El.   ')

RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	10:57				1.38
RUN #1	10:57	11:57	60	1.13	1.42
RUN #2	11:57	12:57	60	0.83	1.30
RUN #3	12:57	13:57	60	1.01	1.40
RUN #4	13:57	14:57	60	0.78	END OF TEST

AVERAGE INFILTRATION RATE 0.94 FEET PER HOUR

AVERAGE INFILTRATION RATE 11.25 INCHES PER HOUR

TESTED BY: A. MORSE



## INFILTRATION TEST DATA SUMMARY

PROJECT: GENESEE ST INFRASTRUCTURE PROJECT  
 LOCATION: GENESEE ST - NORTH SIDEWALK 75' E OF WASHINGTON  
 PROJECT NO: BD-14-190

### INFILTRATION

TEST POINT: B-4  
 PRESOAK DATE: 12/22/2014  
 PRESOAK TIME: 1340

### TEST DATA

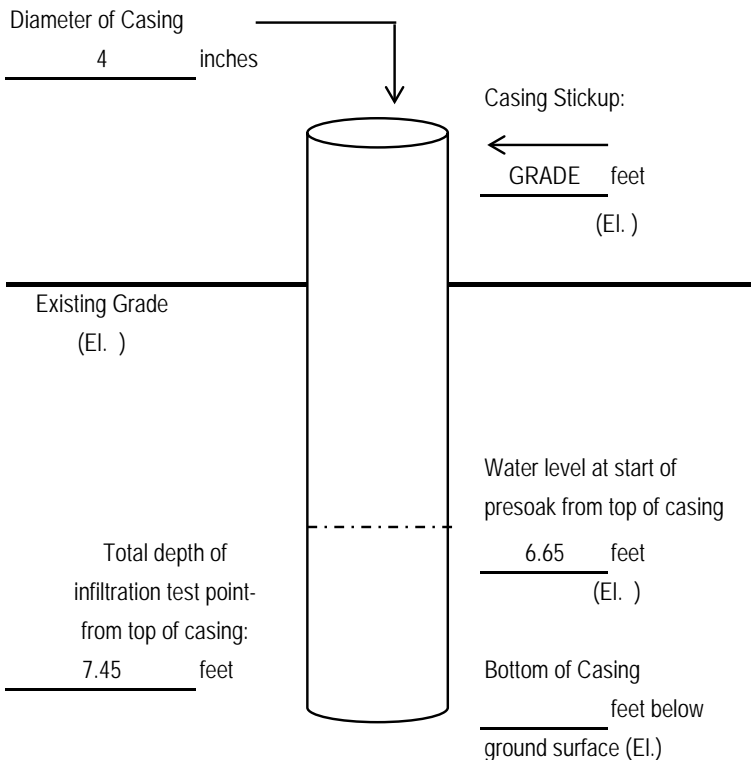
TEST DATE: 12/23/2014  
 START OF TEST TIME: 11:04

IS THERE PRESOAK WATER IN TEST CASING?

☒ YES ☐ NO

IF YES, WHAT DEPTH:

6.65 FEET FROM TOP OF CASING.  
 (El. )



RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	11:04				5.40
RUN #1	11:04	12:04	60	0.05	5.42
RUN #2	12:04	13:04	60	0.02	5.40
RUN #3	13:04	14:04	60	0.01	5.41
RUN #4	14:04	15:04	60	0.02	END OF TEST

AVERAGE INFILTRATION RATE 0.025 FEET PER HOUR  
 AVERAGE INFILTRATION RATE 0.3 INCHES PER HOUR

TESTED BY: A. MORSE



## INFILTRATION TEST DATA SUMMARY

PROJECT: GENESEE ST INFRASTRUCTURE PROJECT

LOCATION: ELLCOTT AT GENESEE IN TRAFFIC TRIANGLE

PROJECT NO: BD-14-190

### INFILTRATION

TEST POINT: B-5

PRESOAK DATE: 12/22/2014

PRESOAK TIME: 1438

### TEST DATA

TEST DATE: 12/23/2014

START OF TEST TIME: 10:52

IS THERE PRESOAK WATER IN TEST CASING?

YES ☐ NO ☒

IF YES, WHAT DEPTH:

           FEET FROM TOP OF CASING.  
(El.   ')

Diameter of Casing

4 inches

Existing Grade

(El.   ')

Total depth of  
infiltration test point-  
from top of casing:

3.80 feet

Casing Stickup:

           feet  
GRADE (El.   ')

Water level at start of  
presoak from top of casing

Ø feet  
(El.   ')

Bottom of Casing

           feet below  
ground surface (El.   ')

RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	10:52				1.78
RUN #1	10:52	11:52	60	0.56	1.76
RUN #2	11:52	12:52	60	0.34	1.70
RUN #3	12:52	13:52	60	0.30	1.70
RUN #4	13:52	14:52	60	0.35	END OF TEST

AVERAGE INFILTRATION RATE 0.39 FEET PER HOUR

AVERAGE INFILTRATION RATE 4.68 INCHES PER HOUR

TESTED BY: A. MORSE





## INFILTRATION TEST DATA SUMMARY

PROJECT: GENESEE ST INFRASTRUCTURE PROJECT

LOCATION: FRONT OF 110 GENESEE STREET

PROJECT NO: BD-14-190

### INFILTRATION

TEST POINT: B-6

PRESOAK DATE: 12/23/2014

PRESOAK TIME: 930

### TEST DATA

TEST DATE: 12/24/2014

START OF TEST TIME: 9:05

IS THERE PRESOAK WATER IN TEST CASING?

YES ☐ NO ☒

IF YES, WHAT DEPTH:

           FEET FROM TOP OF CASING.  
(El.   ')

Diameter of Casing

4 inches

Existing Grade

(El.   ')

Total depth of  
infiltration test point-  
from top of casing:

4.10 feet

Casing Stickup:

           feet  
GRADE (El.   ')

Water level at start of  
presoak from top of casing

Ø feet  
(El.   ')

Bottom of Casing  
           feet below  
ground surface (El.   ')

RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	09:05				2.10
RUN #1	09:05	10:05	60	0.02	2.12
RUN #2	10:05	11:05	60	0.08	2.02
RUN #3	11:05	12:05	60	0.01	2.03
RUN #4	12:05	13:05	60	0.02	END OF TEST

AVERAGE INFILTRATION RATE 0.03 FEET PER HOUR

AVERAGE INFILTRATION RATE 0.36 INCHES PER HOUR

TESTED BY: A. MORSE



## INFILTRATION TEST DATA SUMMARY

PROJECT: GENESEE ST INFRASTRUCTURE PROJECT

LOCATION: FRONT OF 111 GENESEE STREET

PROJECT NO: BD-14-190

### INFILTRATION

TEST POINT: B-7

PRESOAK DATE: 12/23/2014

PRESOAK TIME: 830

### TEST DATA

TEST DATE: 12/24/2014

START OF TEST TIME: 9:09

IS THERE PRESOAK WATER IN TEST CASING?

YES

(NO)

IF YES, WHAT DEPTH:

           FEET FROM TOP OF CASING.

(El.   ')

Diameter of Casing

4

inches

Existing Grade

(El.   ')

Total depth of  
infiltration test point-  
from top of casing:

4.52 feet

Casing Stickup:

           feet

(El.   ')

Water level at start of  
presoak from top of casing

Ø feet

(El.   ')

Bottom of Casing

           feet below

ground surface (El.   ')

RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	09:09				2.50
RUN #1	09:09	10:10	60	0.01	LEFT AT 2.51
RUN #2	10:10	11:10	60	0.00	LEFT AT 2.51
RUN #3	11:10	12:10	60	0.00	LEFT AT 2.51
RUN #4	12:10	13:10	60	0.00	END OF TEST

AVERAGE INFILTRATION RATE 0.0025 FEET PER HOUR

AVERAGE INFILTRATION RATE 0.03 INCHES PER HOUR

TESTED BY: A. MORSE



## INFILTRATION TEST DATA SUMMARY

PROJECT: GENESEE ST INFRASTRUCTURE PROJECT

LOCATION: FRONT OF 130 GENESEE STREET

PROJECT NO: BD-14-190

### INFILTRATION

TEST POINT: B-8

PRESOAK DATE: 12/23/2014

PRESOAK TIME: 900

### TEST DATA

TEST DATE: 12/24/2014

START OF TEST TIME: 9:14

IS THERE PRESOAK WATER IN TEST CASING?

YES

(NO)

IF YES, WHAT DEPTH:

           FEET FROM TOP OF CASING.

(El.   ')

Diameter of Casing

4

inches

Existing Grade

(El.   ')

Total depth of  
infiltration test point-  
from top of casing:

3.96 feet

Casing Stickup:

           feet

(El.   ')

Water level at start of  
presoak from top of casing

Ø feet

(El.   ')

Bottom of Casing

           feet below

ground surface (El.   ')

RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	9:14				1.97
RUN #1	9:14	10:14	60	1.64	1.92
RUN #2	10:14	11:14	60	1.27	1.96
RUN #3	11:14	12:14	60	1.06	1.95
RUN #4	12:14	13:14	60	1.01	END OF TEST

AVERAGE INFILTRATION RATE 1.25 FEET PER HOUR

AVERAGE INFILTRATION RATE 14.94 INCHES PER HOUR

TESTED BY: A. MORSE



## INFILTRATION TEST DATA SUMMARY

PROJECT: GENESEE ST INFRASTRUCTURE PROJECT

LOCATION: WEST SIDE OF 144 GENESEE STREET

PROJECT NO: BD-14-190

### INFILTRATION

TEST POINT: B-9

PRESOAK DATE: 12/23/2014

PRESOAK TIME: 1130

### TEST DATA

TEST DATE: 12/24/2014

START OF TEST TIME: 9:21

IS THERE PRESOAK WATER IN TEST CASING?

YES

(NO)

IF YES, WHAT DEPTH:

           FEET FROM TOP OF CASING.

(El.   ')

Diameter of Casing

4

inches

Existing Grade

(El.   ')

Total depth of  
infiltration test point-  
from top of casing:

4.05 feet

Casing Stickup:

           feet

(El.   ')

Water level at start of  
presoak from top of casing

Ø feet

(El.   ')

Bottom of Casing

           feet below

ground surface (El.   ')

RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	9:14				1.97
RUN #1	9:14	10:14	60	1.64	1.92
RUN #2	10:14	11:14	60	1.27	1.96
RUN #3	11:14	12:14	60	1.06	1.95
RUN #4	12:14	13:14	60	1.01	

AVERAGE INFILTRATION RATE 1.25 FEET PER HOUR

AVERAGE INFILTRATION RATE 14.94 INCHES PER HOUR

TESTED BY: A. MORSE



## INFILTRATION TEST DATA SUMMARY

PROJECT: GENESEE ST INFRASTRUCTURE PROJECT

LOCATION: EAST SIDE OF 144 GENESEE STREET

PROJECT NO: BD-14-190

### INFILTRATION

TEST POINT: B-10

PRESOAK DATE: 12/23/2014

PRESOAK TIME: \_\_\_\_\_

### TEST DATA

TEST DATE: 12/24/2014

START OF TEST TIME: 9:26

IS THERE PRESOAK WATER IN TEST CASING?

YES

(NO)

IF YES, WHAT DEPTH:

\_\_\_\_\_ FEET FROM TOP OF CASING.

(El. )

Diameter of Casing

4

inches

Existing Grade

(El. )

Total depth of  
infiltration test point-  
from top of casing:

4.00 feet

Casing Stickup:

← GRADE feet

(El. )

Water level at start of  
presoak from top of casing

Ø feet

(El. )

Bottom of Casing

\_\_\_\_\_ feet below

ground surface (El.)

RUN NUMBER	START TIME (HOURS)	END TIME (HOURS)	ELAPSED TIME (MIN)	DROP IN WATER LEVEL DURING TEST RUN (FEET)	REFILLED WITH WATER, LEVEL FROM TOP OF CASING (FEET)
START	9:26				2.02
RUN #1	9:26	10:26	60	0.28	1.98
RUN #2	10:26	11:26	60	0.33	2.02
RUN #3	11:26	12:26	60	0.22	2.05
RUN #4	12:26	13:26	60	0.25	END OF TEST

AVERAGE INFILTRATION RATE 0.27 FEET PER HOUR

AVERAGE INFILTRATION RATE 0.81 INCHES PER HOUR

TESTED BY: A. MORSE

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**ATTACHMENT C**

# WATTS ARCHITECTURE & ENGINEERING

95 Perry Street, Suite 300

Buffalo, New York 14203

**(716) 206-5100**

**FAX (716) 206-5199**

[www.watts-ae.com](http://www.watts-ae.com)

JOB

SUBJECT

CALCULATED BY

CHECKED BY

SHEET NO

14033 - Genesee Street

## RAINFALL EVENTS

KJW

DATE

4/28/2015

KTS

DATE

4/28/2015

1

OF

1

DATE PRINTED

4/28/2015 7:06

### 90% Rainfall Event (WQv)

- taken from Figure 4.1, "90% Rainfall"  
from August 2010 NYS Stormwater Management Design Manual

= 0.85 in. rainfall depth

### Non-Erosive Rainfall flow

- taken from Figure 4.7, "2-Year Design Storm"  
from August 2010 NYS Stormwater Management Design Manual

= 2.25 in. rainfall depth

### 25 Year Design Storm

- taken from Figure B-6 25 Year 24 Hour Rainfall  
from TR-55 Urban Hydrology for Small Watersheds - June 1986

= 4.00 in. rainfall depth

**WATTS ARCHITECTURE & ENGINEERING**

95 Perry Street, Suite 300  
 Buffalo, New York 14203  
 (716) 206-5100  
 FAX (716) 206-5199  
[www.watts-ae.com](http://www.watts-ae.com)

JOB

SUBJECT

CALC. BY

CHECKED BY

SHEET NO

14033 - Genesee Street

**Pre Developed Conditions - NYSDEC**

KJW

DATE

4/28/2015

KTS

DATE

4/28/2015

1

OF

1

DATE PRINTED

4/29/2015 11:35

**Pre Development Curve Number (CN)**

Land Use / Land Treatment	Land Areas (sq. ft.)	Percent of Total Land Area (%)	Runoff Curve Number for Soil Type D	Weighted Curve Number based on Land Use	Weighted Composite Runoff Curve Number
% soil Type			1.000		
Paved areas	50,145	0.919	98	98.00	90.03
Lawns, grass, tree pits	4,440	0.081	80	80.00	6.51
<b>Total</b>	<b>54,585</b>	<b>1.00</b>			

Total Runoff Curve Number =	96.54
-----------------------------	-------

## Notes:

1. Land area 100% Hydrological Soil Classification 100% Type "D".
2. "Curve Numbers" taken from Table 5.5.2, pg. 150, of McGraw-Hill Series in Water Resources and Environmental Engineering, "Applied Hydrology".

**Total Disturbed Area**

**54,585 sq. ft. 1.253 acre**

**Total Impervious Area**

Paved Walks, Drives  
(Cadd Take-off)

50,145 sq. ft. 1.151 acre

Impervious Area Totals

**50,145 sq. ft. 1.151 acre**

**Total Pervious Area**

Lawns, grass  
(Cadd Take-off)

4,440 sq. ft. 0.102 acre

Pervious Area Totals

**4,440 sq. ft. 0.102 acre**



**WATTS ARCHITECTURE & ENGINEERING**

95 Perry Street, Suite 300  
 Buffalo, New York 14203  
**(716) 206-5100**  
**FAX (716) 206-5199**  
[www.watts-ae.com](http://www.watts-ae.com)

JOB

SUBJECT

CALC. BY

CHECKED BY

SHEET NO

14033 - Genesee Street

**Post Developed Conditions - NYSDEC**

KJW

DATE

4/28/2015

KTS

DATE

4/28/2015

1

OF

1

DATE PRINTED

5/1/2015 8:41

**Post Development Curve Number (CN)**

Land Use / Land Treatment	Land Areas (sq. ft.)	Percent of Total Land Area (%)	Runoff Curve Number for Soil Type D	Weighted Curve Number based on Land Use	Weighted Composite Runoff Curve Number
% soil Type			1.000		
Paved roof, driveways	49,599	0.909	98	98.00	89.05
Lawns, grass	4,986	0.091	80	80.00	7.31
<b>Total</b>	54,585	1.00			

Total Runoff Curve Number =	96.36
-----------------------------	-------

## Notes:

1. Land area 100% Hydrological Soil Classification 100% Type "D".
2. "Curve Numbers" taken from Table 5.5.2, pg. 150, of McGraw-Hill Series in Water Resources and Environmental Engineering, "Applied Hydrology".

<b>Total Disturbed Area</b>	<b>54,585.00</b>	<b>sq. ft.</b>	<b>1.253</b>	<b>acre</b>
-----------------------------	------------------	----------------	--------------	-------------

**Total Impervious Area**

Paved Walks, Drives (Cadd Take-off)	49,599	sq. ft.	1.139	acre
--	--------	---------	-------	------

<b>Impervious Area Totals</b>	<b>49,599</b>	<b>sq. ft.</b>	<b>1.139</b>	<b>acre</b>
-------------------------------	---------------	----------------	--------------	-------------

**Total Pervious Area**

Planters area minus curb pieces	2,413	sq. ft.	0.055	acre
Planters or lawn in Islands	2,573	sq. ft.	0.059	acre

<b>Pervious Area Totals</b>	<b>4,986</b>	<b>sq. ft.</b>	<b>0.114</b>	<b>acre</b>
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**ATTACHMENT D**

<p style="text-align: center;">Genesee Street Runoff Capture Volume Calculations Updated 04/30/2015</p>						
DS NO.	Planter Name	Planter Location	sqft Drainage Area	Annual depth captured (feet)	Annual volume captured (cf)	Annual volume captured (gal)
2	PB-1A	STA GB 5+87 LT TO STA GB 6+34 LT	5,276	2.63	13,876	103,792
4	PB-2A	STA GB 6+46 LT TO STA GB 7+15 LT	34,149	2.63	89,812	671,793
5	PB-3A	STA GB 7+23 LT TO STA STA 7+57 LT	2,103	3.167	6,660	49,818
15	PB-4A	STA GB 8+23 LT TO STA 8+91 LT	19,614	3.167	62,118	464,639
7	PB-5A	STA GB 5+65 RT TO STA GB 5+85 RT	3,711	3.167	11,753	87,910
8	PB-6A	STA GB 6+01 RT TO STA 6+21 RT	1,765	3.167	5,590	41,811
9	PB-7A	STA GB 6+54 RT TO STA GB 6+88 RT	3,275	3.167	10,372	77,582
10	PB-8A	STA GB 7+14 RT TO STA 7+48 RT	2,841	3.167	8,997	67,301
11	PB-9A	STA GB 7+57 RT TO STA 7+90 RT	2,159	3.167	6,838	51,145
18	PB-3B	STA GB 9+99 RT TO STA GB 10+54 RT	4,155	3.167	13,159	98,428
24	PB-5B	STA GB 12+42 RT TO STA GB 12+82 RT	6,143	1.75	10,750	80,412
31	PB-6B	STA GB 12+87 RT TO STA GB 13+37 RT	3,043	2.63	8,003	59,863
29	PB-1B	STA GB 12+00 LT TO STA GB 12+27 LT	5,742	1.75	10,049	75,163
30	PB-2B	STA GB 12+74 LT TO STA GB 12 + 86 LT	2,715	2.63	7,140	53,411
35	PB-1C	STA GC 16+25 LT TO STA GC 16 + 79 LT	6,022	1.75	10,539	78,828
39	PB-3C	STA GC 18+35 LT TO STA GC 18 +90 LT	3,376	2.63	8,879	66,414
41	PB_4C	STA GC 18+95 LT TO STA GC 19+49 LT	1,824	3.167	5,777	43,209
					<b>TOTAL:</b>	<b>2,171,519</b>

**GALLONS**

**Notes:**

1. Average Annual: Rainfall Buffalo, New York, 42" (5 year average average 2009 to 2013 from National Weather Service Data)
2. 90 Percentile rainfall storm event analyzed 0.85 inch rainfall event storm per August 2010 NYSDEC Stormwater Manual, Buffalo NY
3. 75 Percentile rainfall storm event analyzed 0.5 inch rainfall.
4. 50 Percentile rainfall storm event analyzed 0.35 inch rainfall.

**Gallons Captured**

90 Percentile Rainfall Annual Amount:  $0.9 \times 42''$  annual rainfall = 38 inches or 3.167 ft  
75 Percentile Rainfall Annual Amount:  $0.75 \times 42''$  = 31.5 inches or 2.63 ft  
50 Percentile Rainfall Annual Amount:  $0.50 \times 42''$  = 21 inches or 1.75 ft

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**ATTACHMENT E**

**Post-Construction Maintenance Plan**  
**Project: Genesee Street Greenway Project**  
**Owner Project #: NA**  
**City of Buffalo Buffalo Sewer Authority**

**Section A:**

**Operation and Maintenance Information**

**Site Address:** Genesee Street, Washington Street to Elm Street  
City of Buffalo, NY

**Descriptive Site Location:** Genesee Street, Washington to Elm.

**Property Owner:** City of Buffalo BSA  
1038 City Hall  
Buffalo, NY 14202  
716-851-4664

**Property Management**

(If different from the owner):

PH:

**Section B:**

**Design and Construction Information**

**Permitting Authority:** Buffalo Sewer Authority

**Design Engineer:**

Prime Consultant:  
Watts Architecture and Engineering  
95 Perry Street  
Buffalo, NY 14203

PH: 716-206-5100

**Contractor:**

PH:

**Post-Construction Maintenance Plan**  
**Project: Genesee Street Greenway Project**  
**Owner Project #: NA**  
**City of Buffalo Buffalo Sewer Authority**

**Section C: Maintenance and Inspection Responsibilities**

**Maintenance Mechanism:**

- ☐ Maintenance Agreement
- ☐ Commercial Property
  - ☐ Homeowner's Association
- ☒ Maintenance Assumed by Municipal Entity  
Buffalo Sewer Authority

**Required Inspections:**

- Inspections to be performed annually by Buffalo Sewer Authority Staff supervisor.

**Providers of maintenance services, if known:**

**Section D: Post-construction**  
**Stormwater Management Facilities**

**Site map identifying location of each facility.**

See sheet Landscape plans of project construction drawings

**Facilities:** Planters

**Type:** Stormwater Planters

**Locations:** Various Areas on Site, see construction plans.

**Special needs:**

- Instruct Grounds Department not to fertilize or replant these areas.
- Grounds Department staff to be aware that this area is designed to retain water after storms.

**Section E:**  
**Attachments to Maintenance Plan:**

- As-built plans
  - Final landscaping plans
  - Design calculations In Green Infrastructure capture report body and appendices (Drainage Area map included)
  - Specifications for potential repair items
  - Operation, Maintenance, and Inspection Checklist
1. Stormwater Planters

Post-Construction Maintenance Plan  
**Project: Genesee Street Greenway Project**  
**Owner Project #: NA**  
City of Buffalo Buffalo Sewer Authority

**Attachment 1**

**Maintenance Specifications for Stormwater planters**

## **MAINTENANCE DETAILS FOR STORMWATER PLANTERS**

### **Inspection of PLANTER**

The Owner shall make a visual inspection of the planter area. Trash, debris, oil, sludge, sediment, solid levels, grass levels, and vegetation deficiencies shall be recorded and reported to the Permitting Authority if required. The surface of the planter area shall be inspected for erosion and gullyng and any deficiencies in the surface material or drainage blanket shall be repaired as indicated below. All structural components, which include all outlet structures, valves, pipes, erosion control materials, and the underdrain system, shall be inspected and any damage shall be repaired. If standing water is observed in the planter area more than 48-hours after a storm event then the Owner is responsible for investigating whether the clogging is due to a soil media clog or underdrain system clog by visually inspecting the underdrain system with access provided by the outlet structure. The Owner shall be responsible for recording the information and contacting the Permitting Authority for guidance or if directed by the Permitting Authority prior to inspection, shall follow the methods described below for Underdrain Flushing or Underdrain Replacement.

All material shall be disposed of by the Owner as specified above and in accordance with all federal, State, and local regulations.

### **Stormwater Facilities Weeding and Litter Removal**

The work consists of removing any weeds, trash and/or debris from the surface of the planter area in accordance with the specifications. Weeding shall include any weeds that negatively impact stormwater flowage through the facility, any weeds that negatively impact site lines of the roadway, and/or any weeds that are destroying original design vegetation.

### **Stormwater Facilities Sediment Removal**

The work includes the removal of sediment within the planter facility in all areas where buildup is greater than or equal to 3 inches (75 mm) or has accumulated to a depth of one-third the design volume. The sediment shall be disposed of off-site in a pre-approved location in accordance with the methods above.

### **Erosion Remediation Maintenance**

Any areas within the extents of the planter facility that is subject to erosion or gullyng shall be replenished with granular drainage blanket material and mulch in accordance with this specification. Slope protection material shall be placed in areas prone to erosion in accordance with the above specifications. Embankment stability shall be inspected for seepage and burrowing animals and any erosion or gullyng shall be repaired by the Owner.



**Post-Construction Maintenance Plan**  
**Project: Genesee Street Greenway Project**  
**Owner Project #: NA**  
**City of Buffalo Buffalo Sewer Authority**

**Stormwater Facilities Underdrain System Flushing**

If the clogging of the planter area is due to an underdrain system clog then the underdrain system shall be snaked and/or flushed in accordance with the methods described above.

**Stormwater Facilities Underdrain System Replacement**

If the clogging of the planter area is due to an underdrain system clog and the system has been snaked and/or flushed and the surface of the planter area has been cleaned of sediment and continues to pond stormwater more than 48-hours after a storm event or a visual inspection reveals that damage has been done to the underdrain system then the system shall be excavated and replaced in accordance with the methods described above. The work shall also include replacement of the gravel blanket surrounding the underdrain piping and any/all associated filter fabric.

**Replacement Planting**

This item shall include all work associated with the replacement of any/all vegetation that has died off or has not fully established, as determined at the time of the inspection. The plantings shall be replaced as directed in the specifications above.

**General Cleanup**

The Owner shall be responsible for returning all areas within the extents of the planter facilities to the status that was found at the start of the project or in conformance of the original design Drawings. Any item within the planter facility area, including but not limited to vegetation, pipes, end sections, rip rap, weirs, berms, outlet structures, and frames and grates/covers, damaged or destroyed while completing this work item shall be replaced.

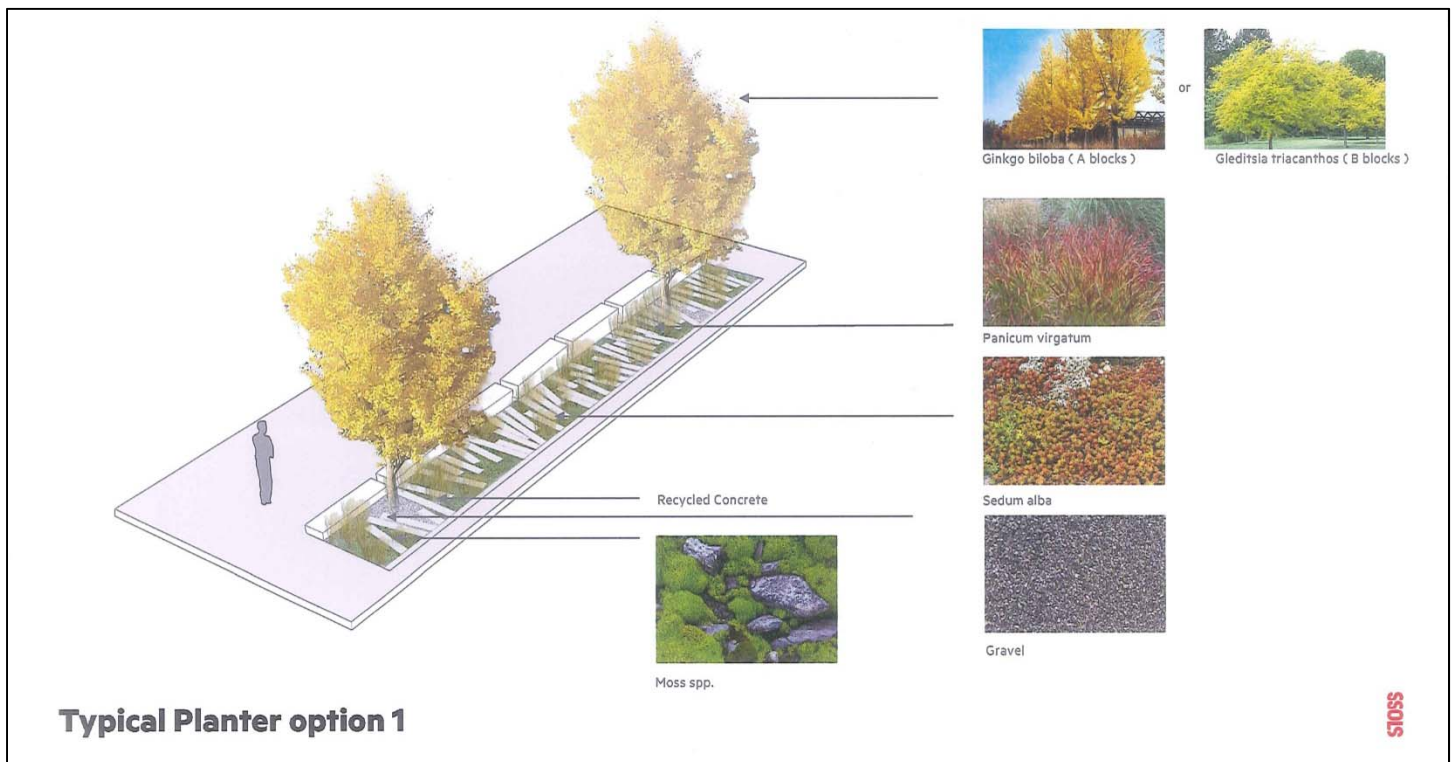


March 2015

Dear Genessee Street Property Owner,

Thank you again for partnering with the Buffalo Sewer Authority and City of Buffalo on the revitalization of Genessee Street! **One of the components of the project will be to use landscaping to reduce water pollution flowing into the Erie Basin Marina and Buffalo River.** The project will install a planter in the right of way in front of your property to collect rainwater from Genessee Street and the sidewalk. Before the project, that rainwater would flow from the street into the City's sewer system where it would generate combined sewer overflows into Erie Basin Marina and the Buffalo River during wet weather and snow melt events.

**The project will involve the installation of low growing (less than knee height), low maintenance and winter hardy grasses and plants that help clean and store water in the planter. The proposed design is illustrated below and has been presented in stakeholder meetings.**



The Buffalo Sewer Authority will pay for the construction of the planters and installation of the plants. The contractor will be responsible for making sure the plants get fully established and that the beds are weed free for two years. After that period, the Buffalo Sewer Authority will inspect the planters to make sure they are working properly.

As always, property owners remain responsible for basic maintenance of their property within the right of way, including litter and snow removal. To help ensure long term plant health, the Authority will also provide a plant maintenance guide and technical support for landowners.

**We would like to finalize the design for the stormwater planter located in the right of way on your property by the end of this month. To finalize completion, we need your input as soon as possible. Please complete the enclosed form and return it to the Buffalo Sewer Authority as soon as possible.**

Please contact me if you have any questions at 716-851-4664 x. 4213 or [joneill@sa.ci.buffalo.ny.us](mailto:joneill@sa.ci.buffalo.ny.us).

Thank you again for your participation in this exciting project!

Sincerely,

Julie Barrett O'Neill, Green Program Director

Buffalo Sewer Authority

## GENESSEE STREET PROPERTY OWNER PARTICIPATION CONFIRMATION

Property Owner's Name: \_\_\_\_\_

Genessee Street Property Address: \_\_\_\_\_

Email: \_\_\_\_\_

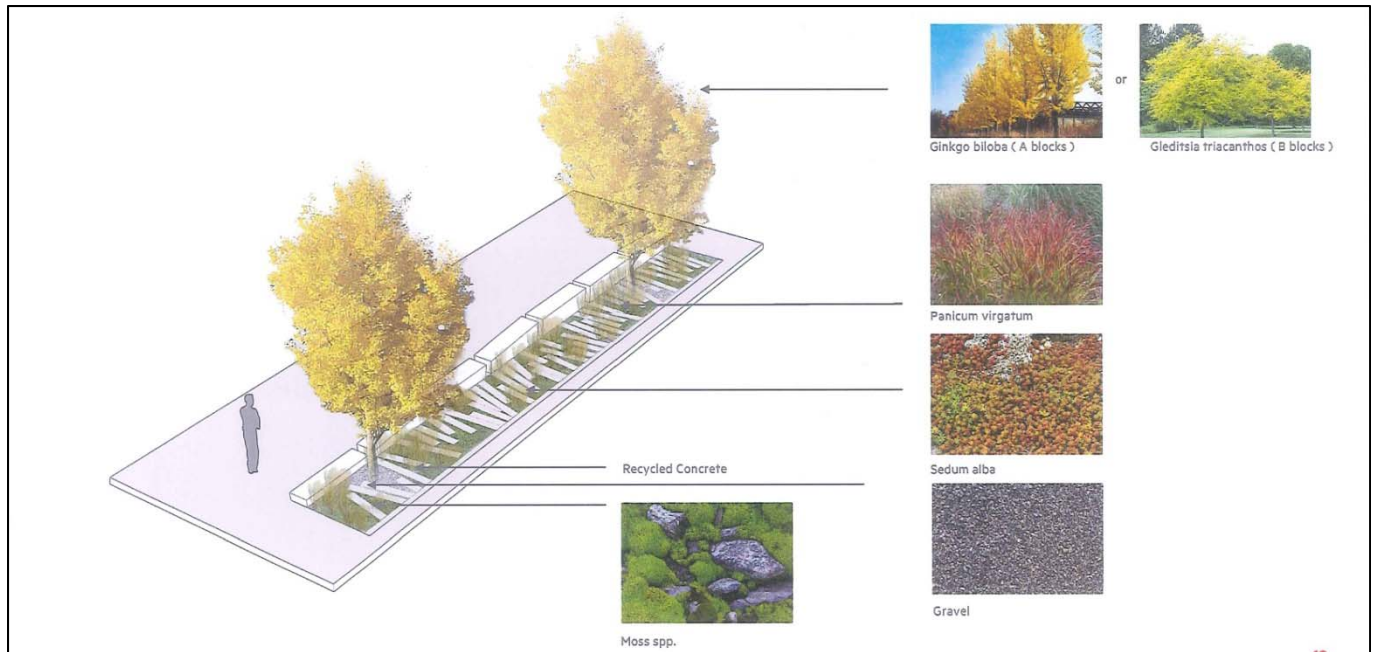
Phone: \_\_\_\_\_

☐

Yes! I understand that the right of way (ROW) space in front of my property has been designed and constructed to manage stormwater runoff from the street and sidewalk.

☐

Yes! I understand the project will involve the installation of **low maintenance** grasses/perennials/shrubs, not to exceed 18" in height, in the right of way; and I understand that, after the initial establishment period of 2 growing seasons, it will be my responsibility to keep the planter free of litter. A plant maintenance guide will be provided to help me maintain the plants after the initial establishment period.

☐

I have concerns about the installation of the landscaped planter described above in front of my property. Please substitute pavement instead. I understand it is my responsibility to keep the area free of snow and litter.

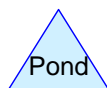
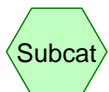
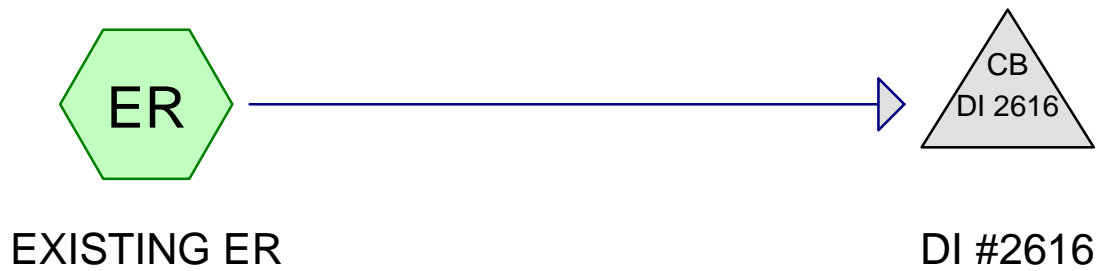
Signed:

\_\_\_\_\_  
Name, Property Owner or Representative

Date

Please return by fax to (716) 856-5810 Attn: Genessee St. or to the Buffalo Sewer Authority, at 1038 City Hall, Buffalo, NY 14202.

EXISTING  
REMEMBREANCE  
PARK



## Genesee St Final

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Page 2

### Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
3,091	80	>75% Grass cover, Good, HSG D (ER)
7,229	98	Paved parking, HSG D (ER)
<b>10,320</b>	<b>93</b>	<b>TOTAL AREA</b>

## Genesee St Final

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Page 3

### Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
10,320	HSG D	ER
0	Other	
<b>10,320</b>		<b>TOTAL AREA</b>

**Genesee St Final**

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Page 4

**Ground Covers (selected nodes)**

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
0	0	0	3,091	0	3,091	>75% Grass cover, Good	
0	0	0	7,229	0	7,229	Paved parking	
<b>0</b>	<b>0</b>	<b>0</b>	<b>10,320</b>	<b>0</b>	<b>10,320</b>	<b>TOTAL AREA</b>	



**Genesee St Final**

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Page 5

**Pipe Listing (selected nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	DI 2616	611.17	611.00	100.0	0.0017	0.010	12.0	0.0	0.0

**Genesee St Final***Type II 24-hr 2 YR Rainfall=2.25"*

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Page 6

Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment ER: EXISTING ER**

Runoff Area=10,320 sf 70.05% Impervious Runoff Depth=1.55"

Tc=12.0 min CN=93 Runoff=0.51 cfs 1,329 cf

**Pond DI 2616: DI #2616**

Peak Elev=611.63' Inflow=0.51 cfs 1,329 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.51 cfs 1,329 cf

**Total Runoff Area = 10,320 sf Runoff Volume = 1,329 cf Average Runoff Depth = 1.55"**  
**29.95% Pervious = 3,091 sf 70.05% Impervious = 7,229 sf**

**Summary for Subcatchment ER: EXISTING ER**

Runoff = 0.51 cfs @ 12.04 hrs, Volume= 1,329 cf, Depth= 1.55"

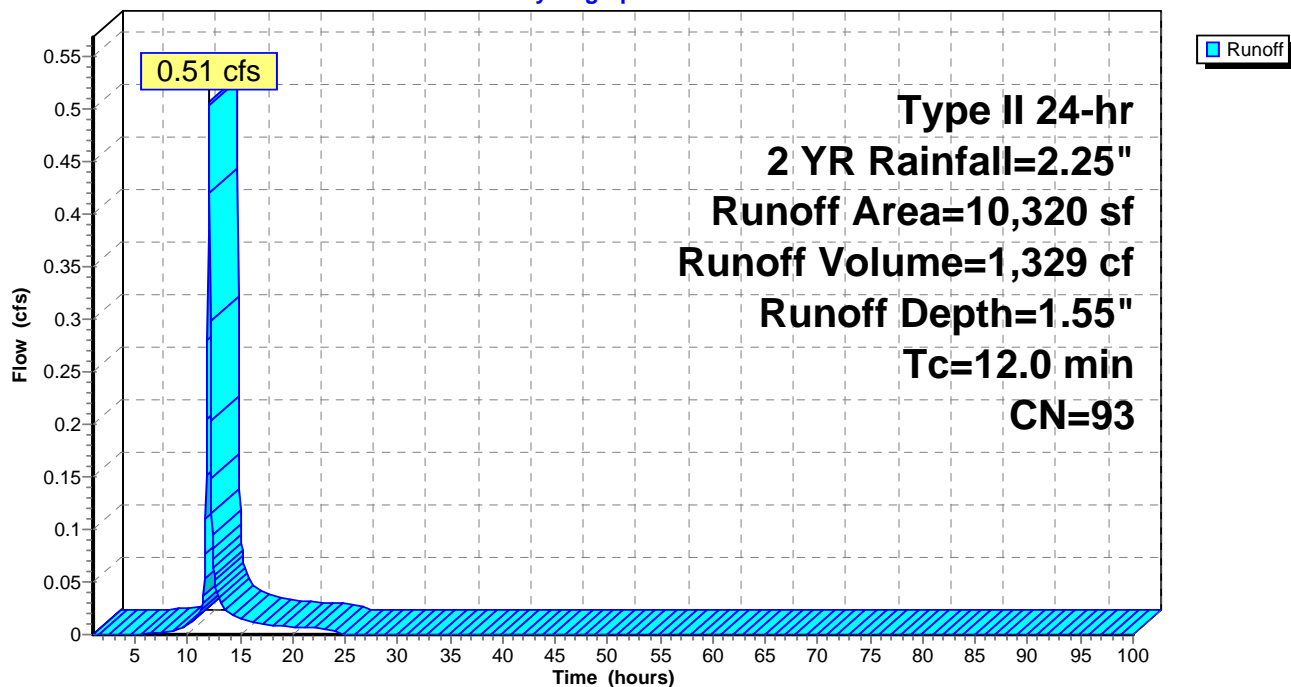
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
7,229	98	Paved parking, HSG D
3,091	80	>75% Grass cover, Good, HSG D
10,320	93	Weighted Average
3,091		29.95% Pervious Area
7,229		70.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment ER: EXISTING ER**

Hydrograph



**Summary for Pond DI 2616: DI #2616**

Inflow Area = 10,320 sf, 70.05% Impervious, Inflow Depth = 1.55" for 2 YR event  
 Inflow = 0.51 cfs @ 12.04 hrs, Volume= 1,329 cf  
 Outflow = 0.51 cfs @ 12.04 hrs, Volume= 1,329 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.51 cfs @ 12.04 hrs, Volume= 1,329 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.63' @ 12.04 hrs

Flood Elev= 647.22'

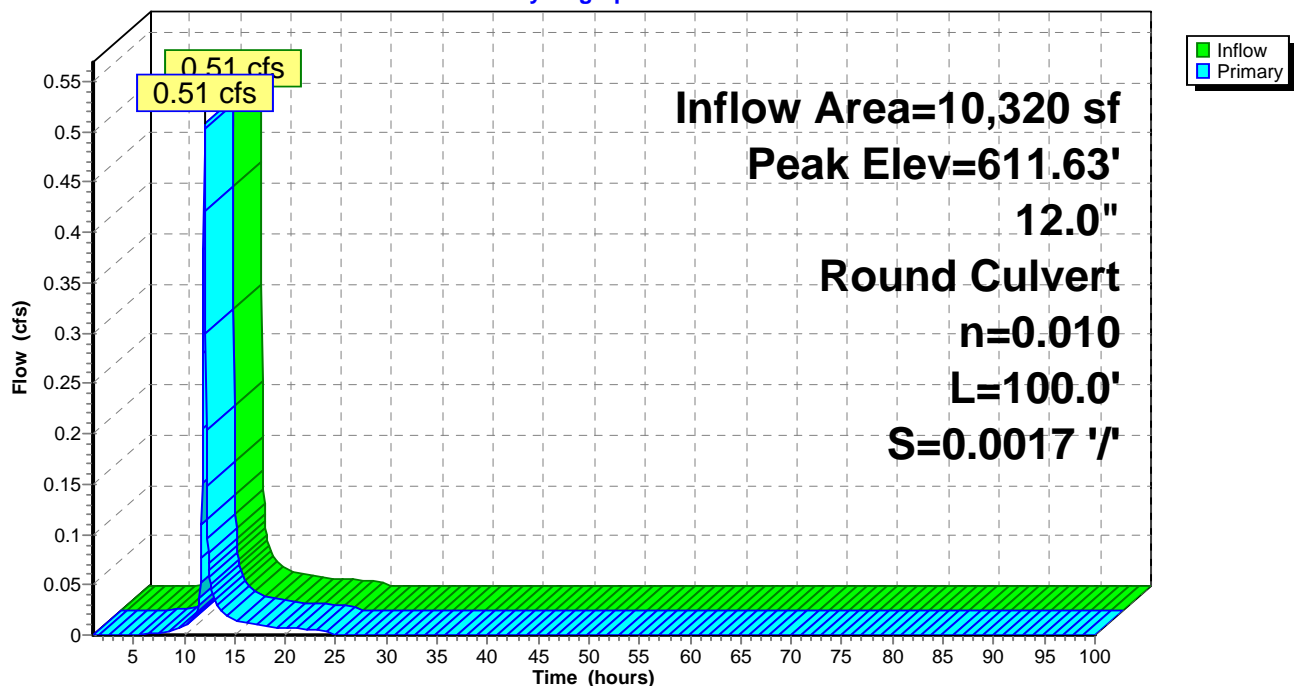
Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	<b>12.0" Round Culvert</b> L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.50 cfs @ 12.04 hrs HW=611.63' (Free Discharge)

1=Culvert (Barrel Controls 0.50 cfs @ 2.09 fps)

**Pond DI 2616: DI #2616**

Hydrograph



**Genesee St Final***Type II 24-hr 25 Year Rainfall=4.00"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment ER: EXISTING ER**

Runoff Area=10,320 sf 70.05% Impervious Runoff Depth=3.22"

Tc=12.0 min CN=93 Runoff=1.02 cfs 2,769 cf

**Pond DI 2616: DI #2616**

Peak Elev=611.84' Inflow=1.02 cfs 2,769 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=1.02 cfs 2,769 cf

**Total Runoff Area = 10,320 sf Runoff Volume = 2,769 cf Average Runoff Depth = 3.22"**  
**29.95% Pervious = 3,091 sf 70.05% Impervious = 7,229 sf**

**Summary for Subcatchment ER: EXISTING ER**

Runoff = 1.02 cfs @ 12.03 hrs, Volume= 2,769 cf, Depth= 3.22"

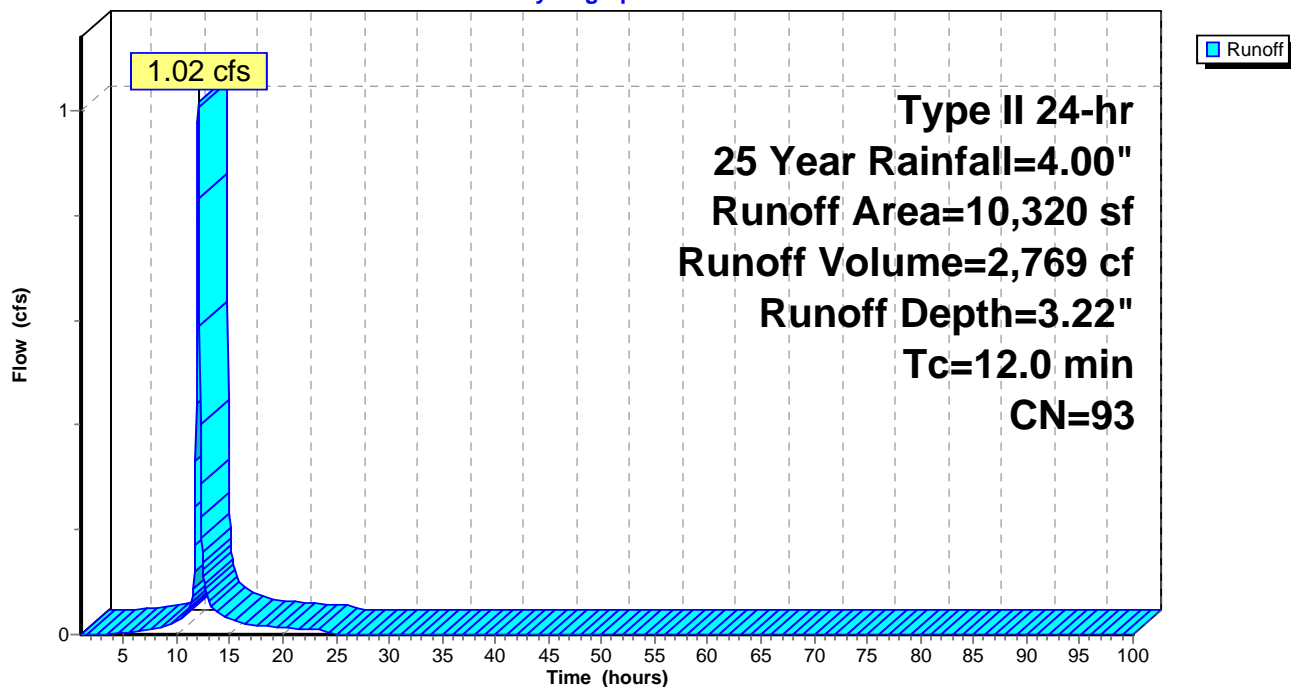
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
7,229	98	Paved parking, HSG D
3,091	80	>75% Grass cover, Good, HSG D
10,320	93	Weighted Average
3,091		29.95% Pervious Area
7,229		70.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment ER: EXISTING ER**

Hydrograph



**Summary for Pond DI 2616: DI #2616**

Inflow Area = 10,320 sf, 70.05% Impervious, Inflow Depth = 3.22" for 25 Year event  
 Inflow = 1.02 cfs @ 12.03 hrs, Volume= 2,769 cf  
 Outflow = 1.02 cfs @ 12.03 hrs, Volume= 2,769 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.02 cfs @ 12.03 hrs, Volume= 2,769 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.84' @ 12.03 hrs

Flood Elev= 647.22'

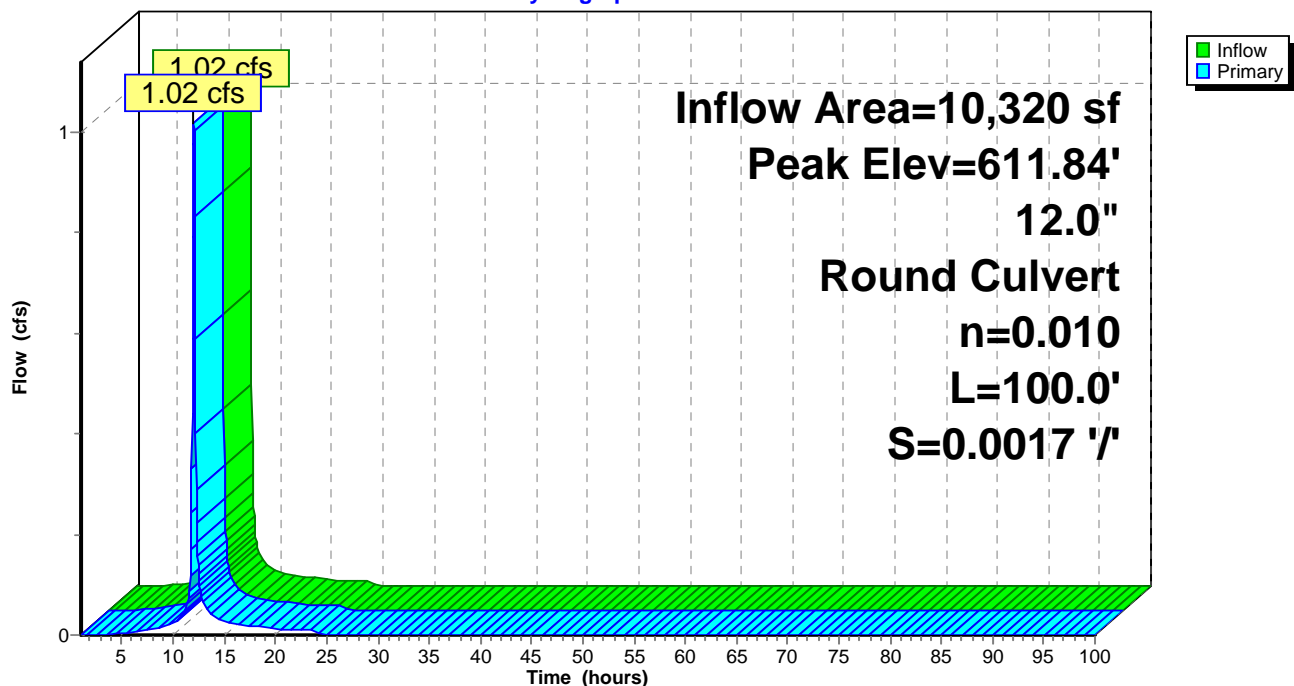
Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	<b>12.0" Round Culvert</b> L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.00 cfs @ 12.03 hrs HW=611.84' (Free Discharge)

1=Culvert (Barrel Controls 1.00 cfs @ 2.54 fps)

**Pond DI 2616: DI #2616**

Hydrograph



**Genesee St Final***Type II 24-hr 50% Rainfall=0.35"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment ER: EXISTING ER**

Runoff Area=10,320 sf 70.05% Impervious Runoff Depth=0.04"

Tc=12.0 min CN=93 Runoff=0.01 cfs 36 cf

**Pond DI 2616: DI #2616**

Peak Elev=611.24' Inflow=0.01 cfs 36 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.01 cfs 36 cf

**Total Runoff Area = 10,320 sf   Runoff Volume = 36 cf   Average Runoff Depth = 0.04"**  
**29.95% Pervious = 3,091 sf   70.05% Impervious = 7,229 sf**



**Summary for Subcatchment ER: EXISTING ER**

Runoff = 0.01 cfs @ 12.08 hrs, Volume= 36 cf, Depth= 0.04"

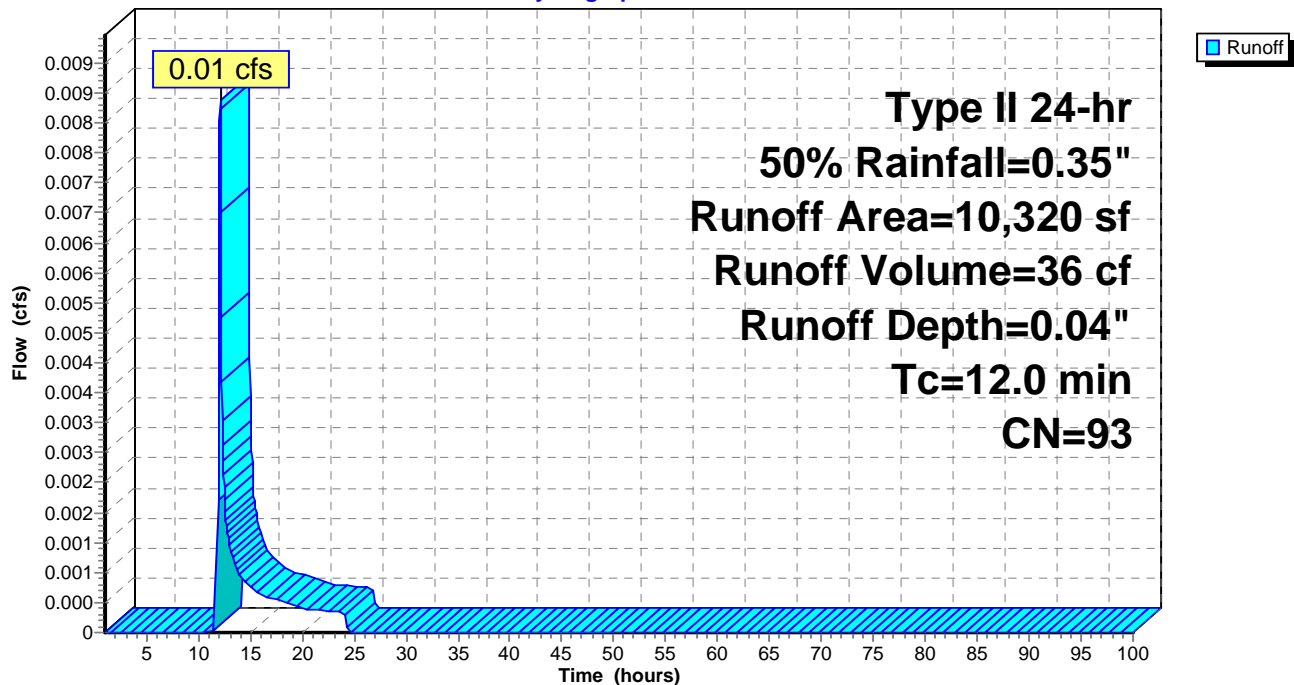
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
7,229	98	Paved parking, HSG D
3,091	80	>75% Grass cover, Good, HSG D
10,320	93	Weighted Average
3,091		29.95% Pervious Area
7,229		70.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment ER: EXISTING ER**

Hydrograph



**Summary for Pond DI 2616: DI #2616**

Inflow Area = 10,320 sf, 70.05% Impervious, Inflow Depth = 0.04" for 50% event  
 Inflow = 0.01 cfs @ 12.08 hrs, Volume= 36 cf  
 Outflow = 0.01 cfs @ 12.08 hrs, Volume= 36 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.01 cfs @ 12.08 hrs, Volume= 36 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

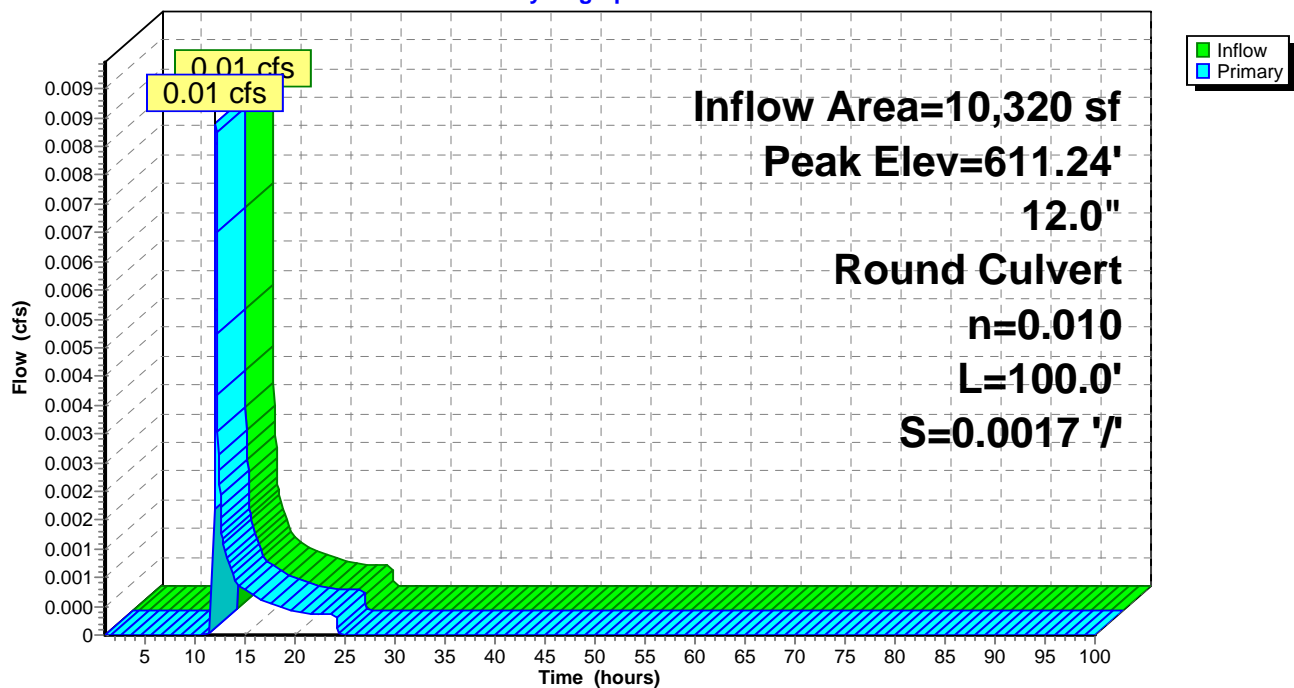
Peak Elev= 611.24' @ 12.08 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	<b>12.0" Round Culvert</b> L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.01 cfs @ 12.08 hrs HW=611.23' (Free Discharge)

1=Culvert (Barrel Controls 0.01 cfs @ 0.62 fps)

**Pond DI 2616: DI #2616****Hydrograph**

**Genesee St Final***Type II 24-hr 75% Rainfall=0.50"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment ER: EXISTING ER**

Runoff Area=10,320 sf 70.05% Impervious Runoff Depth=0.11"

Tc=12.0 min CN=93 Runoff=0.03 cfs 95 cf

**Pond DI 2616: DI #2616**

Peak Elev=611.29' Inflow=0.03 cfs 95 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.03 cfs 96 cf

**Total Runoff Area = 10,320 sf   Runoff Volume = 95 cf   Average Runoff Depth = 0.11"**  
**29.95% Pervious = 3,091 sf   70.05% Impervious = 7,229 sf**

**Summary for Subcatchment ER: EXISTING ER**

Runoff = 0.03 cfs @ 12.06 hrs, Volume= 95 cf, Depth= 0.11"

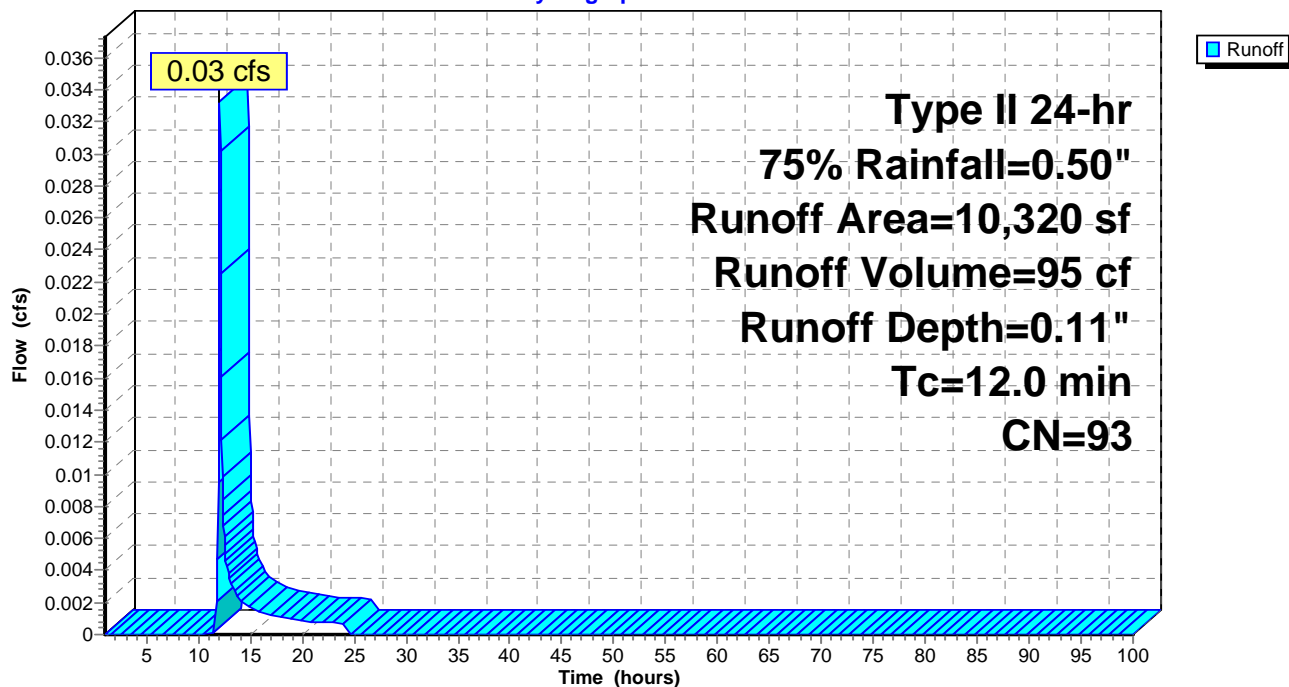
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
7,229	98	Paved parking, HSG D
3,091	80	>75% Grass cover, Good, HSG D
10,320	93	Weighted Average
3,091		29.95% Pervious Area
7,229		70.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment ER: EXISTING ER**

Hydrograph



**Summary for Pond DI 2616: DI #2616**

Inflow Area = 10,320 sf, 70.05% Impervious, Inflow Depth = 0.11" for 75% event  
 Inflow = 0.03 cfs @ 12.06 hrs, Volume= 95 cf  
 Outflow = 0.03 cfs @ 12.06 hrs, Volume= 96 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.03 cfs @ 12.06 hrs, Volume= 96 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

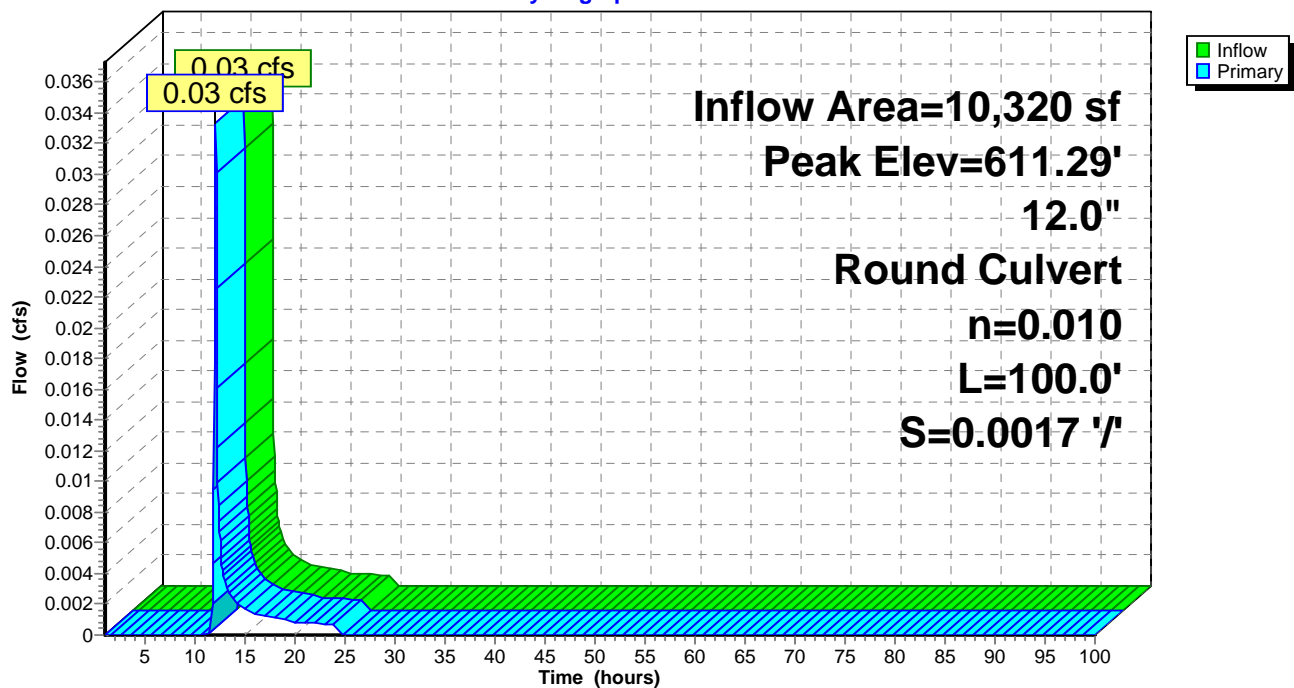
Peak Elev= 611.29' @ 12.06 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	<b>12.0" Round Culvert</b> L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 ' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.03 cfs @ 12.06 hrs HW=611.29' (Free Discharge)

1=Culvert (Barrel Controls 0.03 cfs @ 0.94 fps)

**Pond DI 2616: DI #2616****Hydrograph**

**Genesee St Final***Type II 24-hr WQv Rainfall=0.85"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment ER: EXISTING ER**

Runoff Area=10,320 sf 70.05% Impervious Runoff Depth=0.34"

Tc=12.0 min CN=93 Runoff=0.11 cfs 290 cf

**Pond DI 2616: DI #2616**

Peak Elev=611.39' Inflow=0.11 cfs 290 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.11 cfs 290 cf

**Total Runoff Area = 10,320 sf   Runoff Volume = 290 cf   Average Runoff Depth = 0.34"**  
**29.95% Pervious = 3,091 sf   70.05% Impervious = 7,229 sf**

**Summary for Subcatchment ER: EXISTING ER**

Runoff = 0.11 cfs @ 12.04 hrs, Volume= 290 cf, Depth= 0.34"

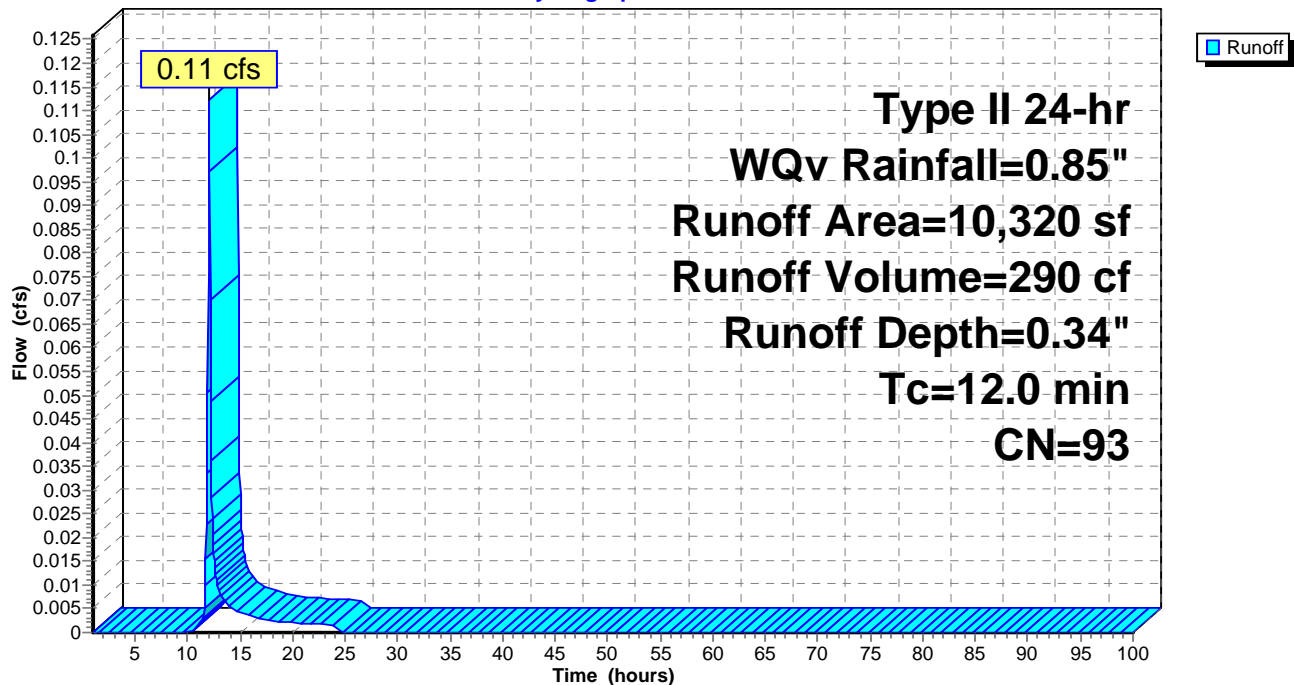
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
7,229	98	Paved parking, HSG D
3,091	80	>75% Grass cover, Good, HSG D
10,320	93	Weighted Average
3,091		29.95% Pervious Area
7,229		70.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment ER: EXISTING ER**

Hydrograph



**Summary for Pond DI 2616: DI #2616**

Inflow Area = 10,320 sf, 70.05% Impervious, Inflow Depth = 0.34" for WQv event  
 Inflow = 0.11 cfs @ 12.04 hrs, Volume= 290 cf  
 Outflow = 0.11 cfs @ 12.04 hrs, Volume= 290 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.11 cfs @ 12.04 hrs, Volume= 290 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

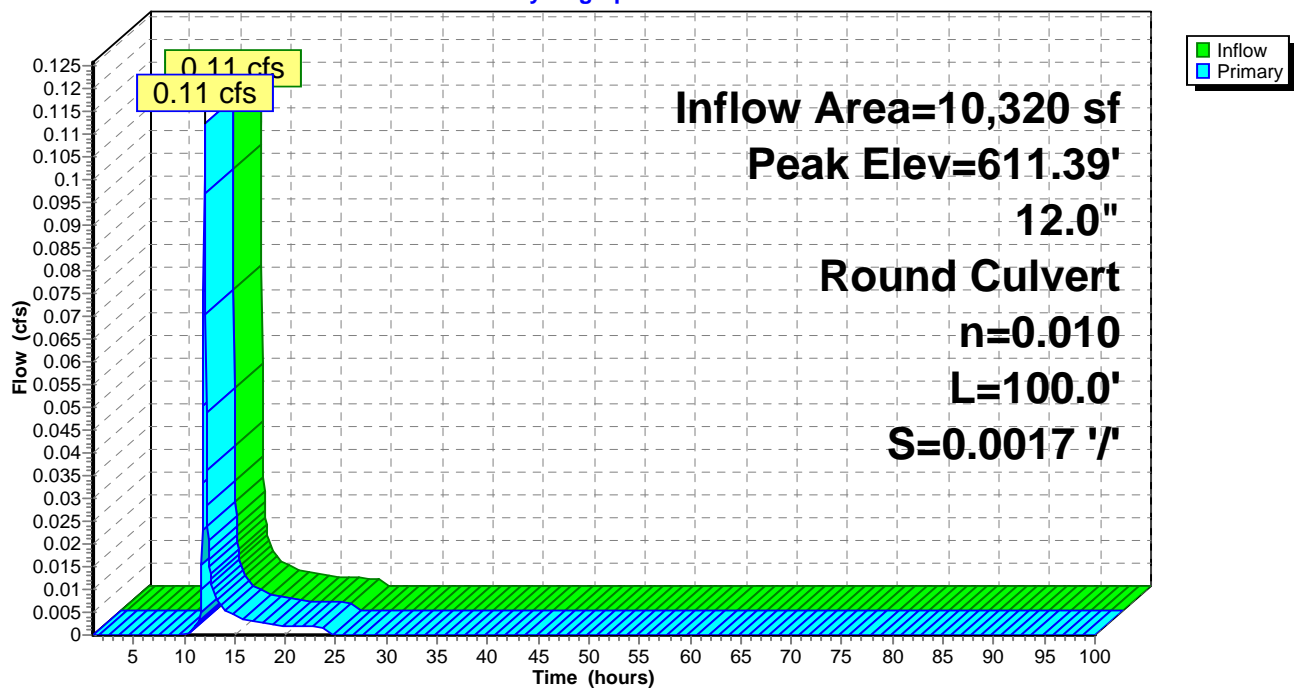
Peak Elev= 611.39' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	<b>12.0" Round Culvert</b> L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

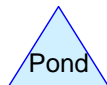
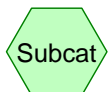
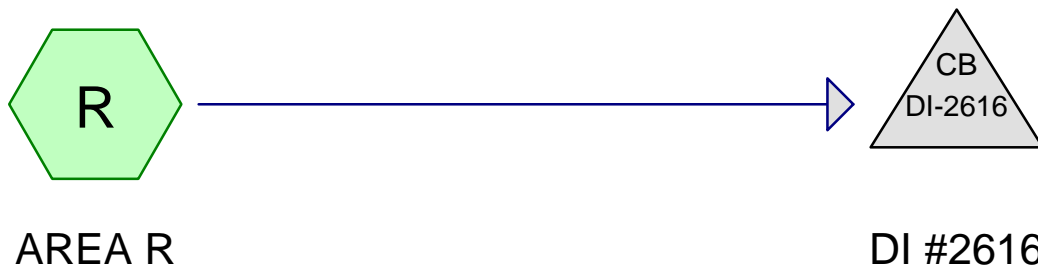
**Primary OutFlow** Max=0.11 cfs @ 12.04 hrs HW=611.39' (Free Discharge)

1=Culvert (Barrel Controls 0.11 cfs @ 1.35 fps)

**Pond DI 2616: DI #2616****Hydrograph**



PROPOSED  
REMEMBRENC  
PARK



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### Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
1,735	80	>75% Grass cover, Good, HSG D (R)
8,585	98	Paved parking, HSG D (R)
<b>10,320</b>	<b>95</b>	<b>TOTAL AREA</b>

## Genesee St Final

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### Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
10,320	HSG D	R
0	Other	
<b>10,320</b>		<b>TOTAL AREA</b>

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**Ground Covers (selected nodes)**

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
0	0	0	1,735	0	1,735	>75% Grass cover, Good	
0	0	0	8,585	0	8,585	Paved parking	
<b>0</b>	<b>0</b>	<b>0</b>	<b>10,320</b>	<b>0</b>	<b>10,320</b>	<b>TOTAL AREA</b>	

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**Pipe Listing (selected nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	DI-2616	611.17	611.00	100.0	0.0017	0.010	12.0	0.0	0.0

**Genesee St Final***Type II 24-hr 2 YR Rainfall=2.25"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment R: AREA R**

Runoff Area=10,320 sf 83.19% Impervious Runoff Depth=1.72"

Tc=12.0 min CN=95 Runoff=0.55 cfs 1,481 cf

**Pond DI-2616: DI #2616**

Peak Elev=611.65' Inflow=0.55 cfs 1,481 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.55 cfs 1,481 cf

**Total Runoff Area = 10,320 sf Runoff Volume = 1,481 cf Average Runoff Depth = 1.72"**  
**16.81% Pervious = 1,735 sf 83.19% Impervious = 8,585 sf**

**Genesee St Final**

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Type II 24-hr 2 YR Rainfall=2.25"

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**Summary for Subcatchment R: AREA R**

Runoff = 0.55 cfs @ 12.03 hrs, Volume= 1,481 cf, Depth= 1.72"

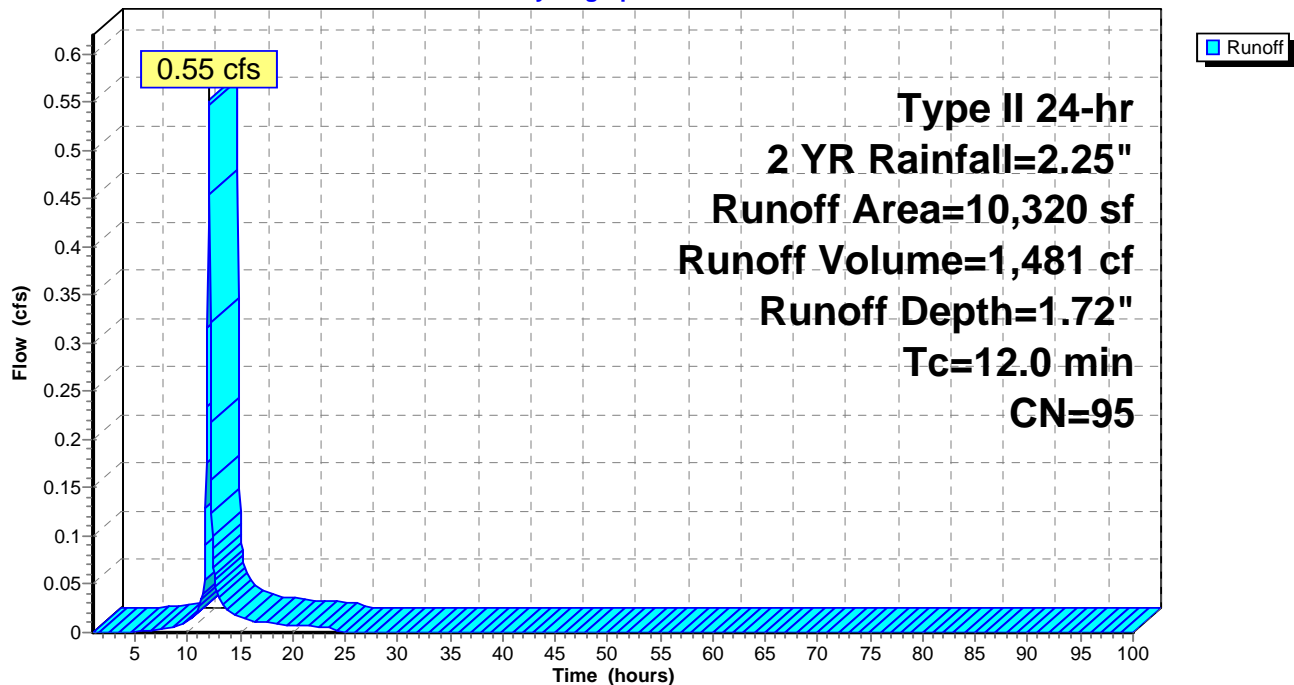
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
8,585	98	Paved parking, HSG D
1,735	80	>75% Grass cover, Good, HSG D
10,320	95	Weighted Average
1,735		16.81% Pervious Area
8,585		83.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment R: AREA R**

Hydrograph



**Summary for Pond DI-2616: DI #2616**

Inflow Area = 10,320 sf, 83.19% Impervious, Inflow Depth = 1.72" for 2 YR event  
 Inflow = 0.55 cfs @ 12.03 hrs, Volume= 1,481 cf  
 Outflow = 0.55 cfs @ 12.03 hrs, Volume= 1,481 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.55 cfs @ 12.03 hrs, Volume= 1,481 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.65' @ 12.03 hrs

Flood Elev= 647.22'

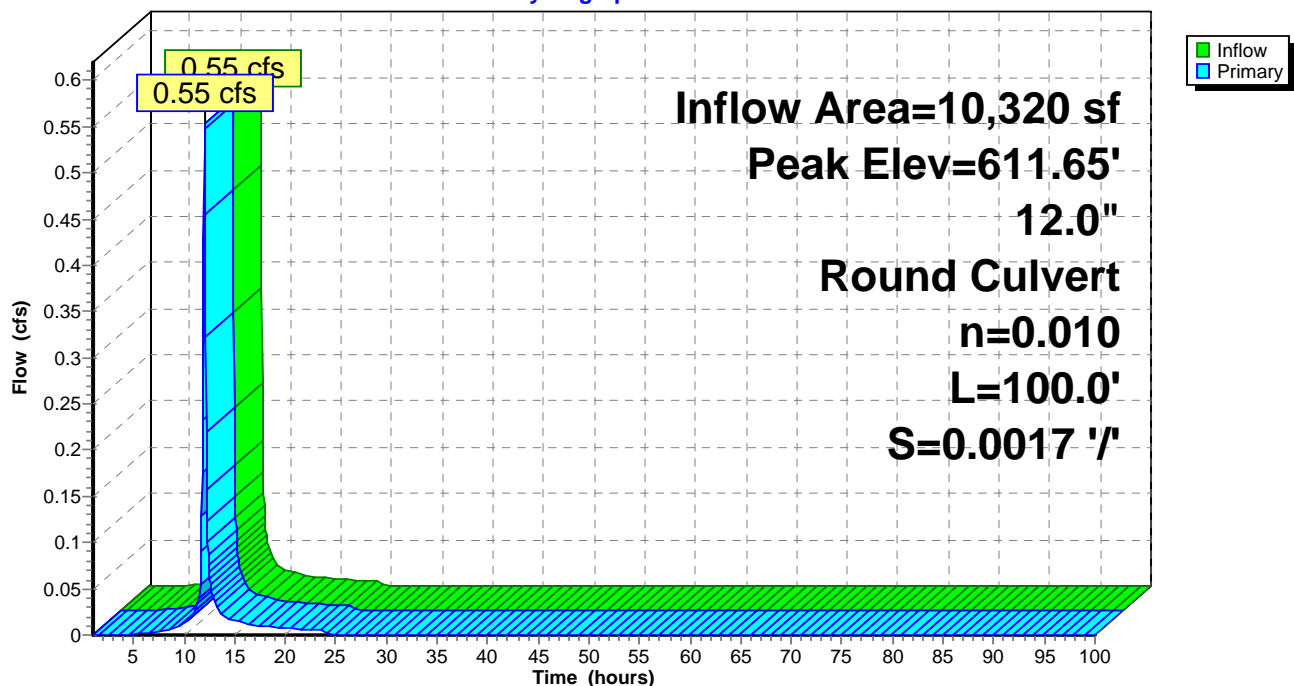
Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	<b>12.0" Round Culvert</b> L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.54 cfs @ 12.03 hrs HW=611.65' (Free Discharge)

↑**1=Culvert** (Barrel Controls 0.54 cfs @ 2.14 fps)

**Pond DI-2616: DI #2616**

Hydrograph





**Genesee St Final***Type II 24-hr 25 Year Rainfall=4.00"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment R: AREA R**

Runoff Area=10,320 sf 83.19% Impervious Runoff Depth=3.43"

Tc=12.0 min CN=95 Runoff=1.06 cfs 2,951 cf

**Pond DI-2616: DI #2616**

Peak Elev=611.86' Inflow=1.06 cfs 2,951 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 ' / ' Outflow=1.06 cfs 2,951 cf

**Total Runoff Area = 10,320 sf   Runoff Volume = 2,951 cf   Average Runoff Depth = 3.43"**  
**16.81% Pervious = 1,735 sf   83.19% Impervious = 8,585 sf**

### Summary for Subcatchment R: AREA R

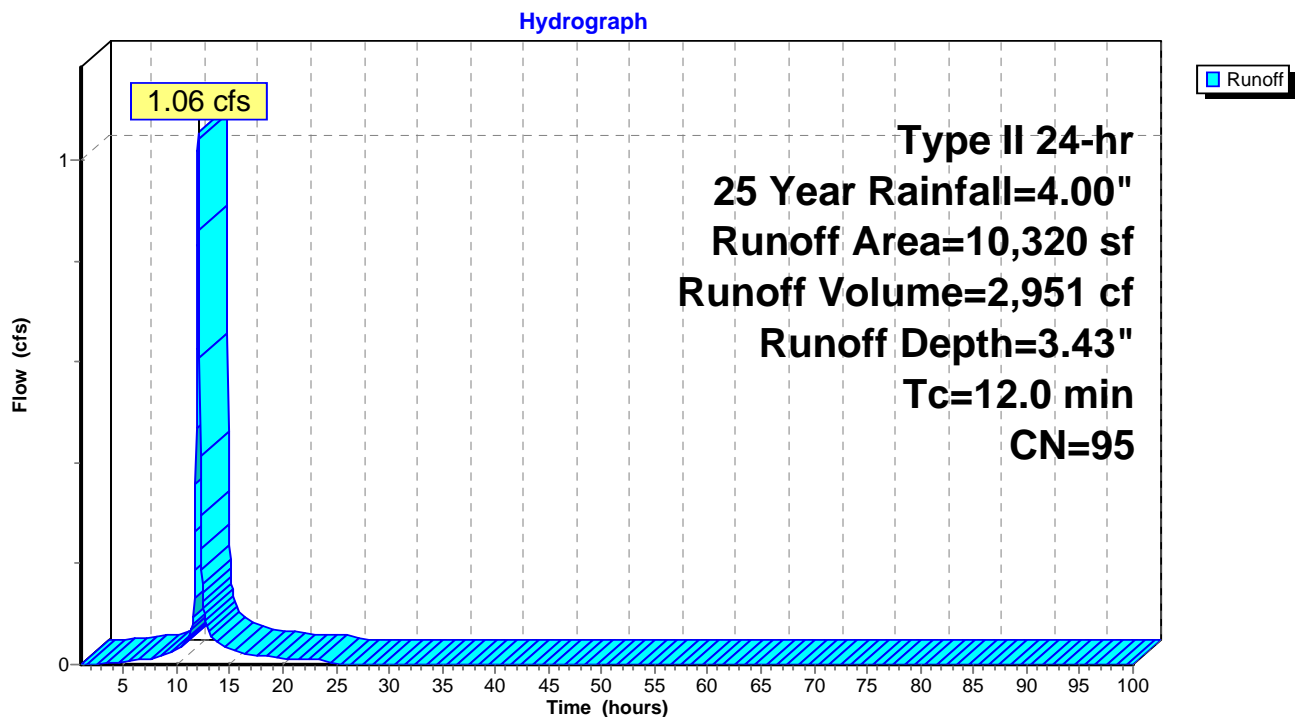
Runoff = 1.06 cfs @ 12.03 hrs, Volume= 2,951 cf, Depth= 3.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
8,585	98	Paved parking, HSG D
1,735	80	>75% Grass cover, Good, HSG D
10,320	95	Weighted Average
1,735		16.81% Pervious Area
8,585		83.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

### Subcatchment R: AREA R



**Summary for Pond DI-2616: DI #2616**

Inflow Area = 10,320 sf, 83.19% Impervious, Inflow Depth = 3.43" for 25 Year event  
 Inflow = 1.06 cfs @ 12.03 hrs, Volume= 2,951 cf  
 Outflow = 1.06 cfs @ 12.03 hrs, Volume= 2,951 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.06 cfs @ 12.03 hrs, Volume= 2,951 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.86' @ 12.03 hrs

Flood Elev= 647.22'

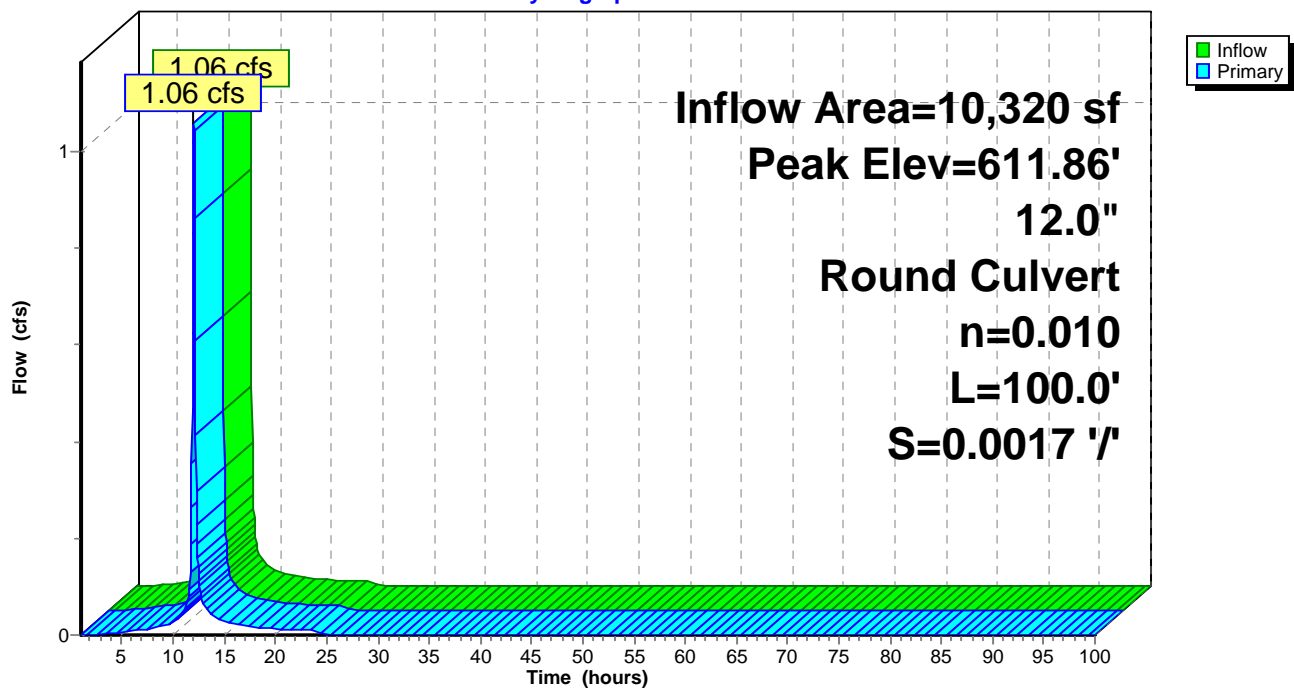
Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	<b>12.0" Round Culvert</b> L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.03 cfs @ 12.03 hrs HW=611.85' (Free Discharge)

1=Culvert (Barrel Controls 1.03 cfs @ 2.57 fps)

**Pond DI-2616: DI #2616**

Hydrograph



**Genesee St Final***Type II 24-hr 50% Rainfall=0.35"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment R: AREA R**

Runoff Area=10,320 sf 83.19% Impervious Runoff Depth=0.08"

Tc=12.0 min CN=95 Runoff=0.02 cfs 67 cf

**Pond DI-2616: DI #2616**

Peak Elev=611.27' Inflow=0.02 cfs 67 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.02 cfs 67 cf

**Total Runoff Area = 10,320 sf   Runoff Volume = 67 cf   Average Runoff Depth = 0.08"**  
**16.81% Pervious = 1,735 sf   83.19% Impervious = 8,585 sf**

**Summary for Subcatchment R: AREA R**

Runoff = 0.02 cfs @ 12.06 hrs, Volume= 67 cf, Depth= 0.08"

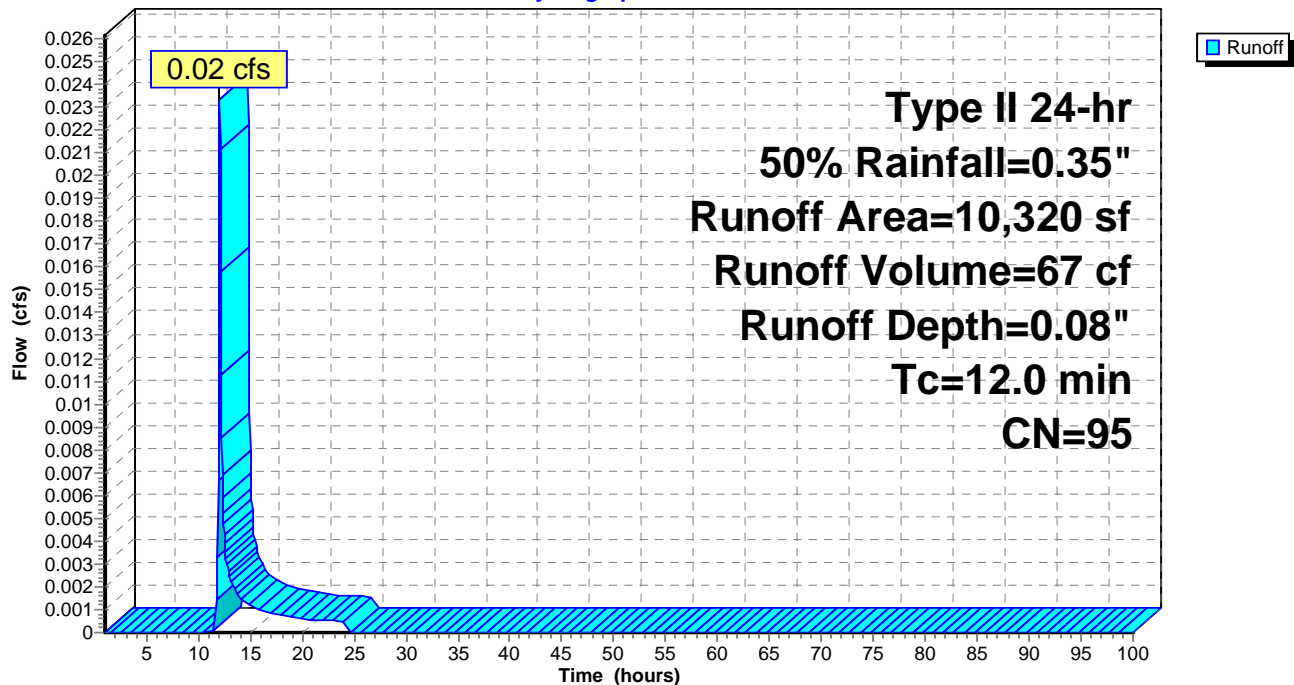
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
8,585	98	Paved parking, HSG D
1,735	80	>75% Grass cover, Good, HSG D
10,320	95	Weighted Average
1,735		16.81% Pervious Area
8,585		83.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment R: AREA R**

Hydrograph



**Summary for Pond DI-2616: DI #2616**

Inflow Area = 10,320 sf, 83.19% Impervious, Inflow Depth = 0.08" for 50% event  
 Inflow = 0.02 cfs @ 12.06 hrs, Volume= 67 cf  
 Outflow = 0.02 cfs @ 12.06 hrs, Volume= 67 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.02 cfs @ 12.06 hrs, Volume= 67 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.27' @ 12.06 hrs

Flood Elev= 647.22'

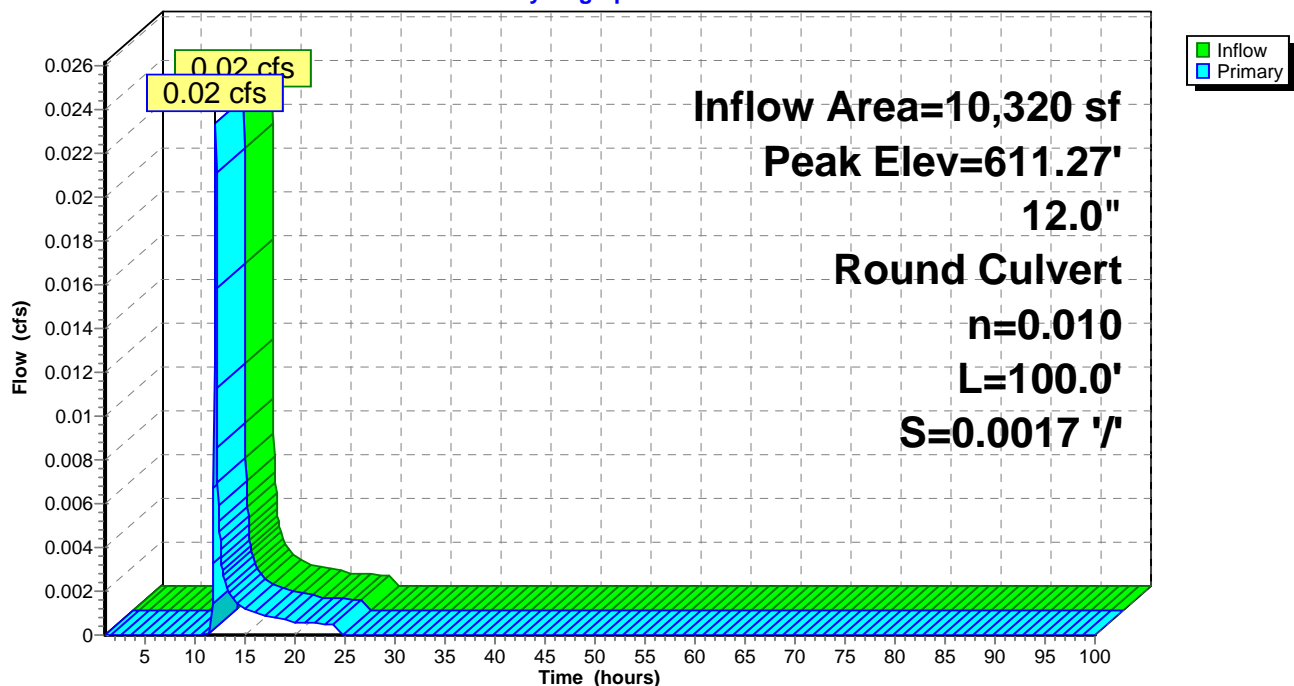
Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	<b>12.0" Round Culvert</b> L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 ' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.02 cfs @ 12.06 hrs HW=611.27' (Free Discharge)

1=Culvert (Barrel Controls 0.02 cfs @ 0.84 fps)

**Pond DI-2616: DI #2616**

Hydrograph



**Genesee St Final***Type II 24-hr 75% Rainfall=0.50"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment R: AREA R**

Runoff Area=10,320 sf 83.19% Impervious Runoff Depth=0.17"

Tc=12.0 min CN=95 Runoff=0.06 cfs 145 cf

**Pond DI-2616: DI #2616**

Peak Elev=611.32' Inflow=0.06 cfs 145 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.06 cfs 146 cf

**Total Runoff Area = 10,320 sf   Runoff Volume = 145 cf   Average Runoff Depth = 0.17"**  
**16.81% Pervious = 1,735 sf   83.19% Impervious = 8,585 sf**

**Summary for Subcatchment R: AREA R**

Runoff = 0.06 cfs @ 12.05 hrs, Volume= 145 cf, Depth= 0.17"

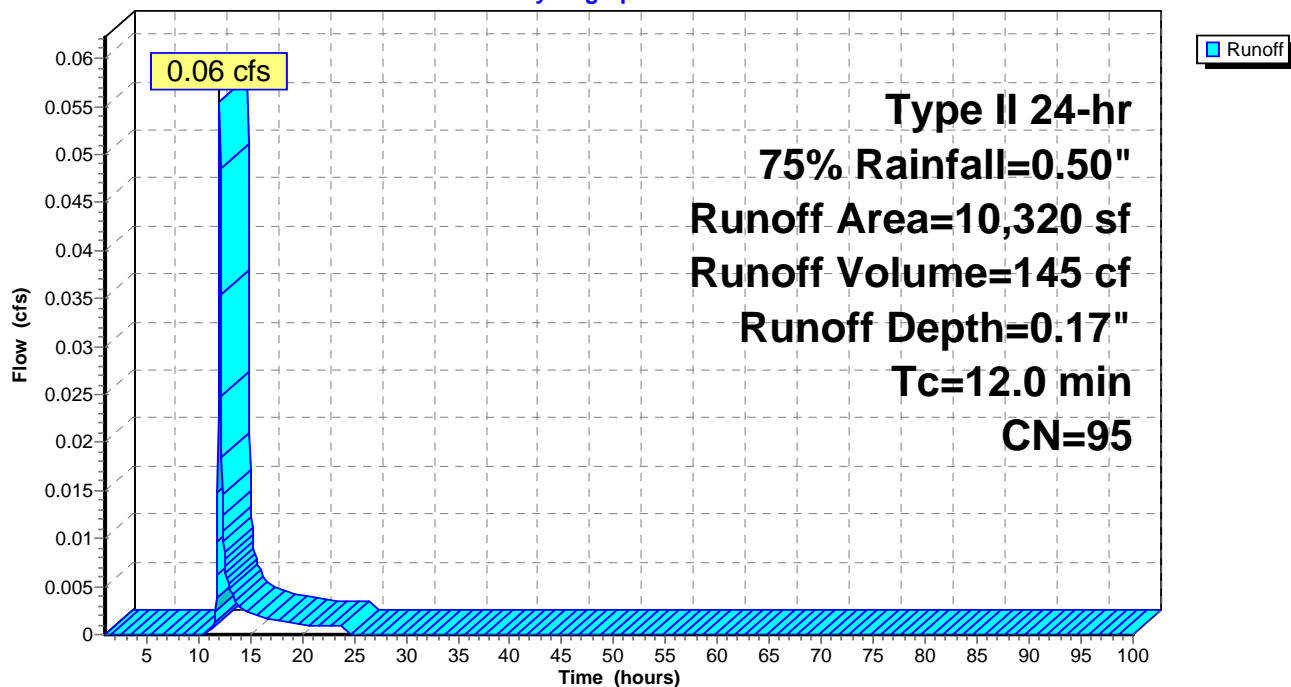
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
8,585	98	Paved parking, HSG D
1,735	80	>75% Grass cover, Good, HSG D
10,320	95	Weighted Average
1,735		16.81% Pervious Area
8,585		83.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment R: AREA R**

Hydrograph





**Summary for Pond DI-2616: DI #2616**

Inflow Area = 10,320 sf, 83.19% Impervious, Inflow Depth = 0.17" for 75% event  
 Inflow = 0.06 cfs @ 12.05 hrs, Volume= 145 cf  
 Outflow = 0.06 cfs @ 12.05 hrs, Volume= 146 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.06 cfs @ 12.05 hrs, Volume= 146 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.32' @ 12.05 hrs

Flood Elev= 647.22'

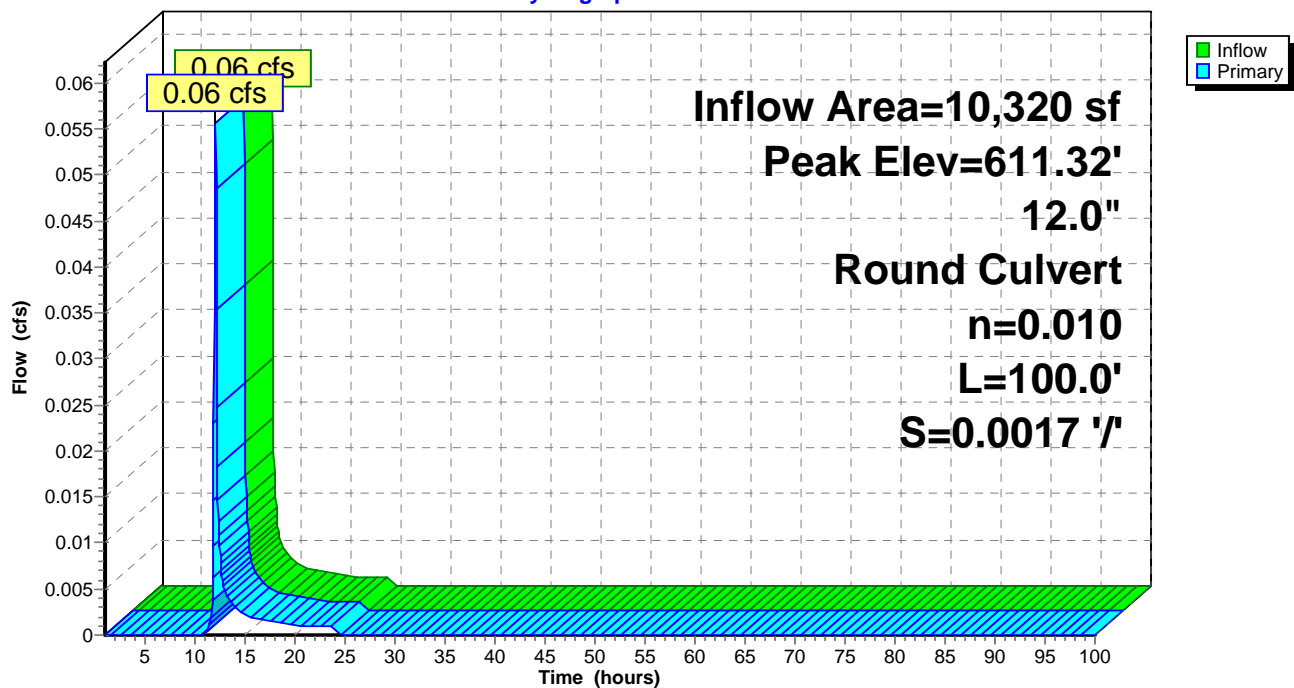
Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	<b>12.0" Round Culvert</b> L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 ' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.06 cfs @ 12.05 hrs HW=611.32' (Free Discharge)

1=Culvert (Barrel Controls 0.06 cfs @ 1.10 fps)

**Pond DI-2616: DI #2616**

Hydrograph



**Genesee St Final***Type II 24-hr WQv Rainfall=0.85"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment R: AREA R**

Runoff Area=10,320 sf 83.19% Impervious Runoff Depth=0.44"

Tc=12.0 min CN=95 Runoff=0.15 cfs 375 cf

**Pond DI-2616: DI #2616**

Peak Elev=611.42' Inflow=0.15 cfs 375 cf

12.0" Round Culvert n=0.010 L=100.0' S=0.0017 '/' Outflow=0.15 cfs 375 cf

**Total Runoff Area = 10,320 sf   Runoff Volume = 375 cf   Average Runoff Depth = 0.44"**  
**16.81% Pervious = 1,735 sf   83.19% Impervious = 8,585 sf**

**Summary for Subcatchment R: AREA R**

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 375 cf, Depth= 0.44"

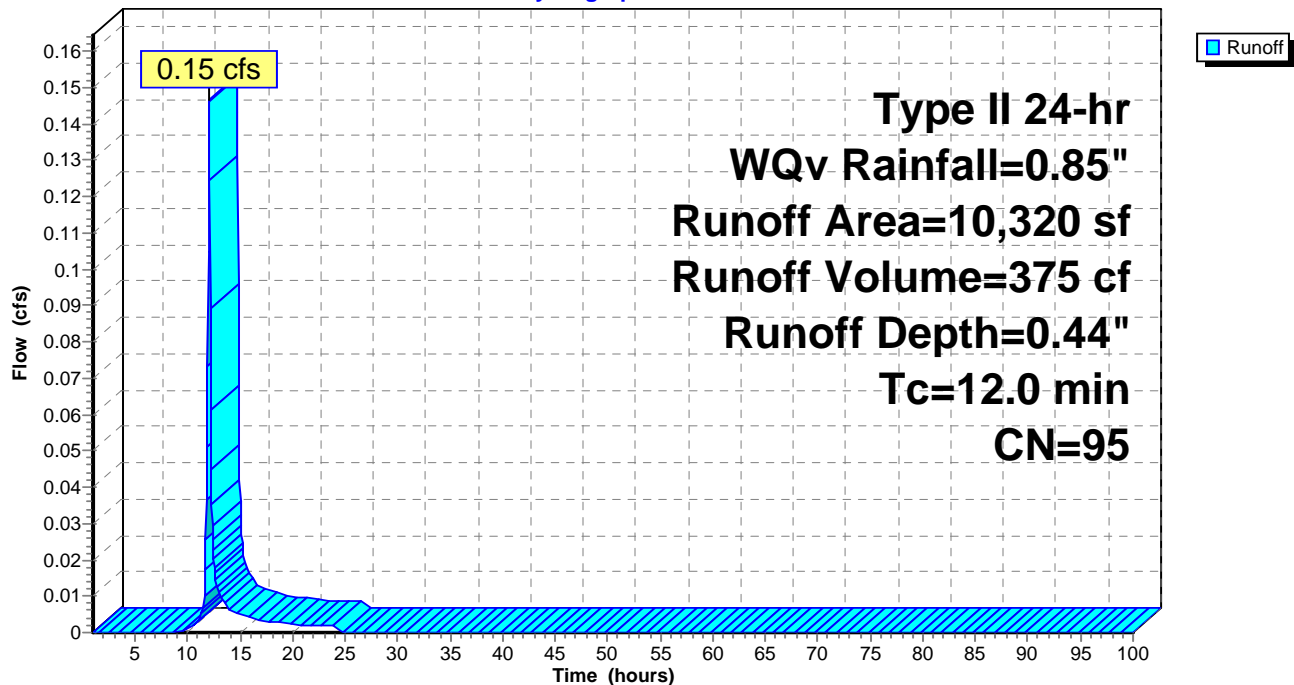
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
8,585	98	Paved parking, HSG D
1,735	80	>75% Grass cover, Good, HSG D
10,320	95	Weighted Average
1,735		16.81% Pervious Area
8,585		83.19% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment R: AREA R**

Hydrograph



**Summary for Pond DI-2616: DI #2616**

Inflow Area = 10,320 sf, 83.19% Impervious, Inflow Depth = 0.44" for WQv event  
 Inflow = 0.15 cfs @ 12.04 hrs, Volume= 375 cf  
 Outflow = 0.15 cfs @ 12.04 hrs, Volume= 375 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.15 cfs @ 12.04 hrs, Volume= 375 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

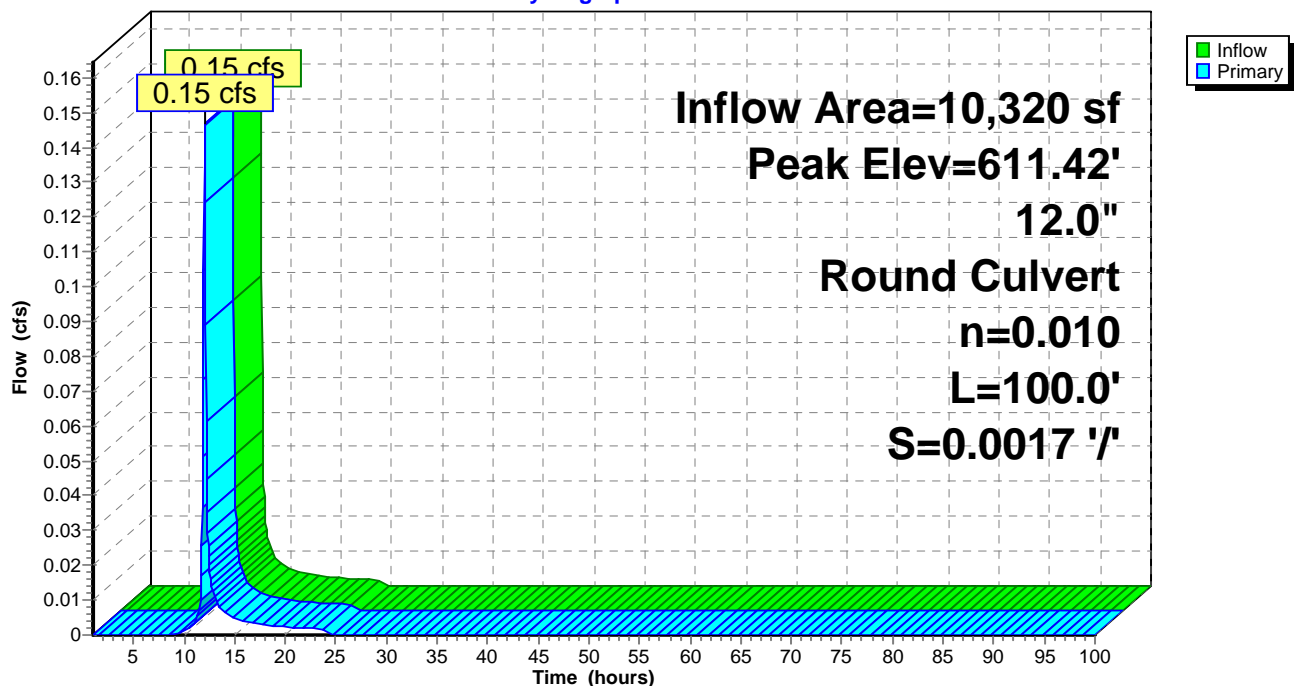
Peak Elev= 611.42' @ 12.04 hrs

Flood Elev= 647.22'

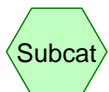
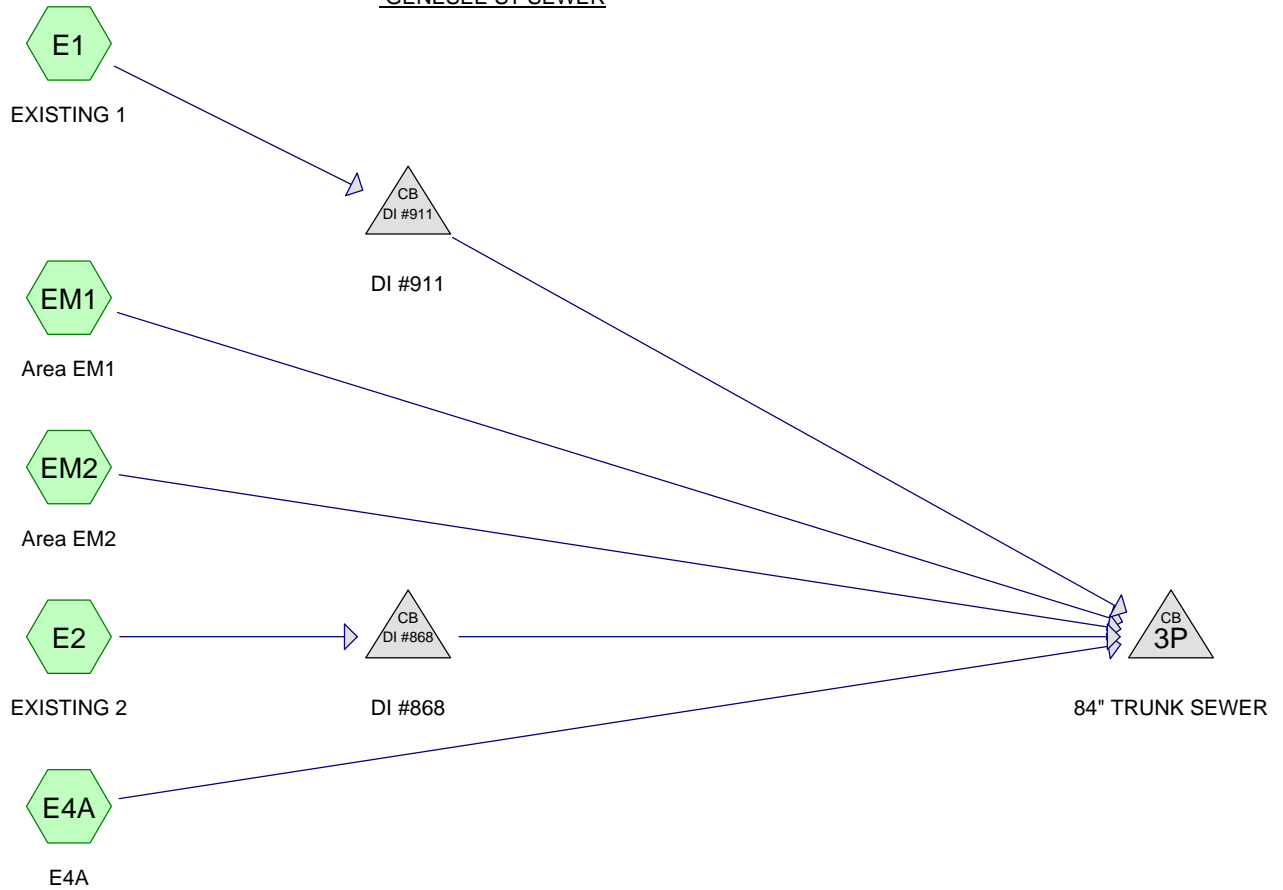
Device	Routing	Invert	Outlet Devices
#1	Primary	611.17'	<b>12.0" Round Culvert</b> L= 100.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.17' / 611.00' S= 0.0017 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.14 cfs @ 12.04 hrs HW=611.41' (Free Discharge)

↑1=Culvert (Barrel Controls 0.14 cfs @ 1.46 fps)

**Pond DI-2616: DI #2616****Hydrograph**

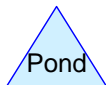
EXISTING GENESEE  
ST - WASHINGTON  
TO OAK - 84"  
GENESEE ST SEWER



Subcat



Reach



Pond



Link

**Routing Diagram for Genesee St Final**

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## Genesee St Final

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### Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
1,591	80	>75% Grass cover, Good, HSG D (E1, E2, E4A, EM1)
95,660	98	Paved parking, HSG D (E1, E2, E4A, EM1, EM2)
<b>97,251</b>	<b>98</b>	<b>TOTAL AREA</b>

## Genesee St Final

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### Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
97,251	HSG D	E1, E2, E4A, EM1, EM2
0	Other	
<b>97,251</b>		<b>TOTAL AREA</b>

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**Ground Covers (selected nodes)**

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
0	0	0	1,591	0	1,591	>75% Grass cover, Good	
0	0	0	95,660	0	95,660	Paved parking	
<b>0</b>	<b>0</b>	<b>0</b>	<b>97,251</b>	<b>0</b>	<b>97,251</b>	<b>TOTAL AREA</b>	



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**Pipe Listing (selected nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	3P	590.00	589.80	100.0	0.0020	0.015	84.0	0.0	0.0
2	DI #868	612.54	611.63	325.0	0.0028	0.010	10.0	0.0	0.0
3	DI #911	612.54	611.63	325.0	0.0028	0.010	10.0	0.0	0.0

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Type II 24-hr 2 YR Rainfall=2.25"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E1: EXISTING 1**Runoff Area=17,544 sf 97.93% Impervious Runoff Depth=2.02"  
Tc=12.0 min CN=98 Runoff=1.04 cfs 2,957 cf**Subcatchment E2: EXISTING 2**Runoff Area=18,344 sf 99.02% Impervious Runoff Depth=2.02"  
Tc=12.0 min CN=98 Runoff=1.08 cfs 3,092 cf**Subcatchment E4A: E4A**Runoff Area=17,702 sf 95.27% Impervious Runoff Depth=1.92"  
Tc=12.0 min CN=97 Runoff=1.02 cfs 2,828 cf**Subcatchment EM1: Area EM1**Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=2.02"  
Tc=15.0 min CN=98 Runoff=1.63 cfs 5,091 cf**Subcatchment EM2: Area EM2**Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=2.02"  
Tc=12.0 min CN=98 Runoff=0.79 cfs 2,267 cf**Pond 3P: 84" TRUNK SEWER**Peak Elev=590.92' Inflow=5.53 cfs 16,235 cf  
84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=5.53 cfs 16,235 cf**Pond DI #868: DI #868**Peak Elev=613.25' Inflow=1.08 cfs 3,092 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=1.08 cfs 3,092 cf**Pond DI #911: DI #911**Peak Elev=613.22' Inflow=1.04 cfs 2,957 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=1.04 cfs 2,957 cf**Total Runoff Area = 97,251 sf Runoff Volume = 16,235 cf Average Runoff Depth = 2.00"**  
**1.64% Pervious = 1,591 sf 98.36% Impervious = 95,660 sf**

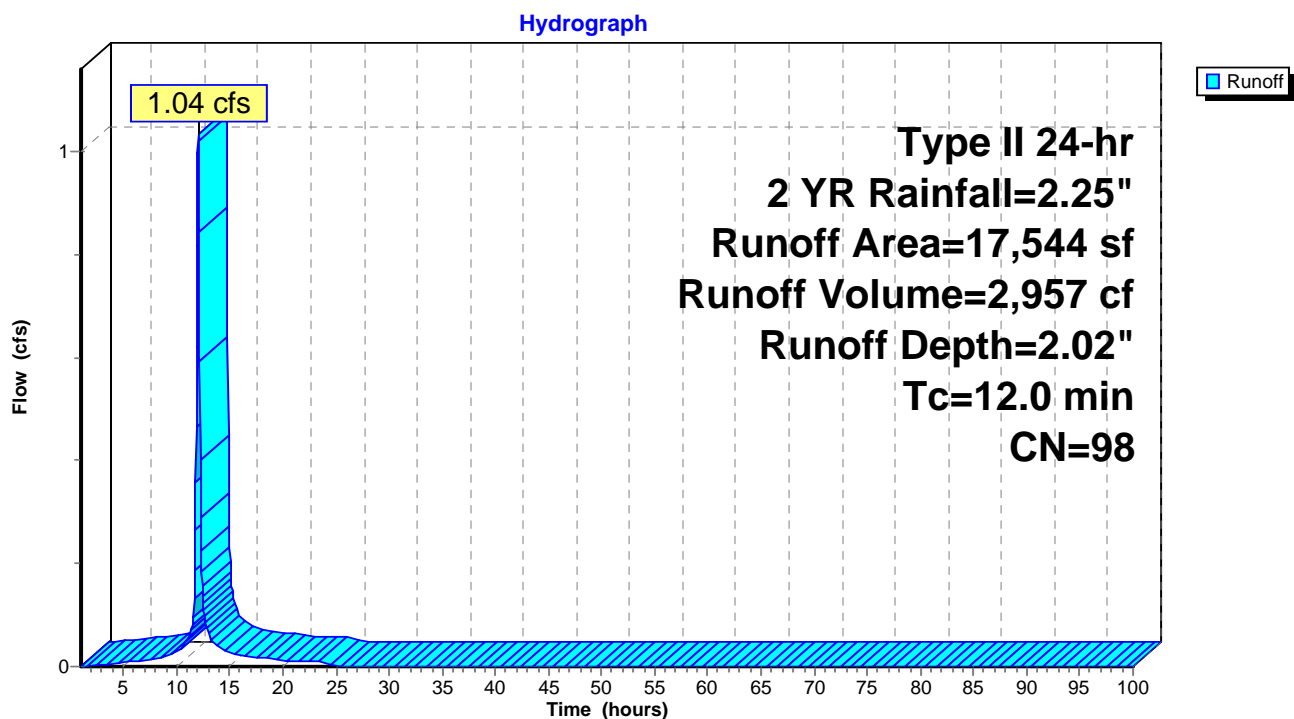
**Summary for Subcatchment E1: EXISTING 1**

Runoff = 1.04 cfs @ 12.03 hrs, Volume= 2,957 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
17,181	98	Paved parking, HSG D
363	80	>75% Grass cover, Good, HSG D
17,544	98	Weighted Average
363		2.07% Pervious Area
17,181		97.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E1: EXISTING 1**

**Summary for Subcatchment E2: EXISTING 2**

Runoff = 1.08 cfs @ 12.03 hrs, Volume= 3,092 cf, Depth= 2.02"

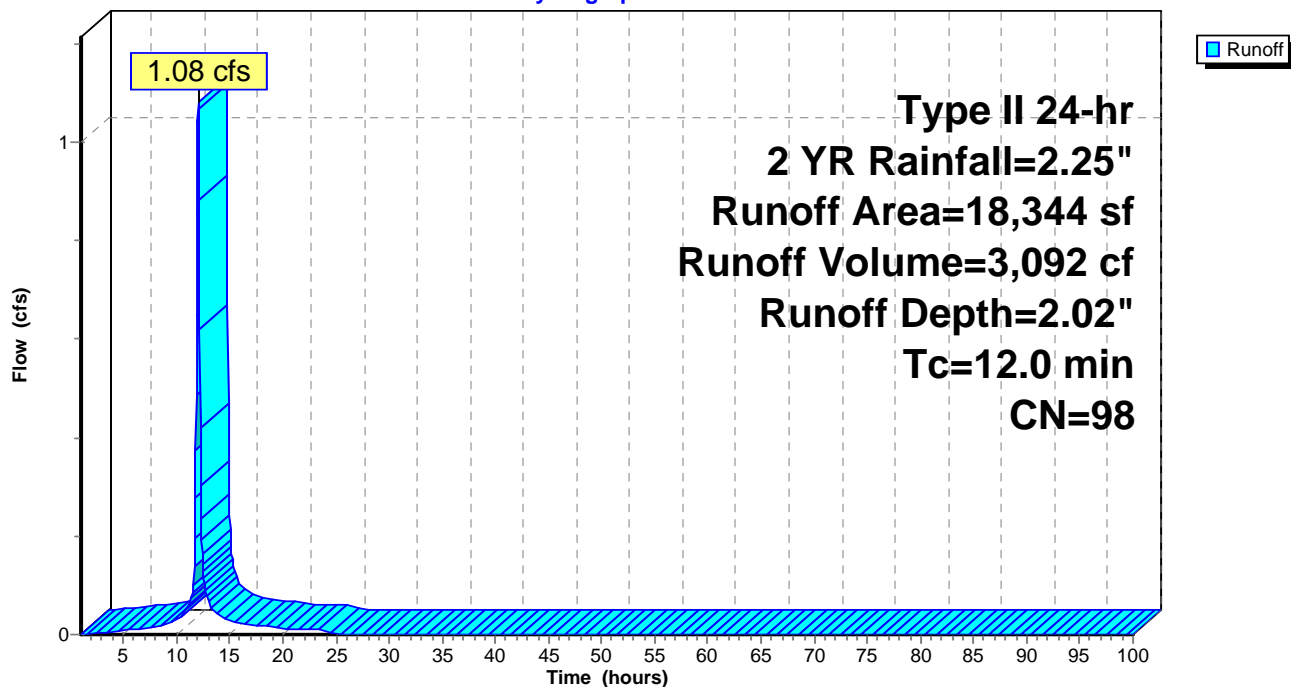
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
18,164	98	Paved parking, HSG D
180	80	>75% Grass cover, Good, HSG D
18,344	98	Weighted Average
180		0.98% Pervious Area
18,164		99.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E2: EXISTING 2**

Hydrograph



**Summary for Subcatchment E4A: E4A**

Runoff = 1.02 cfs @ 12.03 hrs, Volume= 2,828 cf, Depth= 1.92"

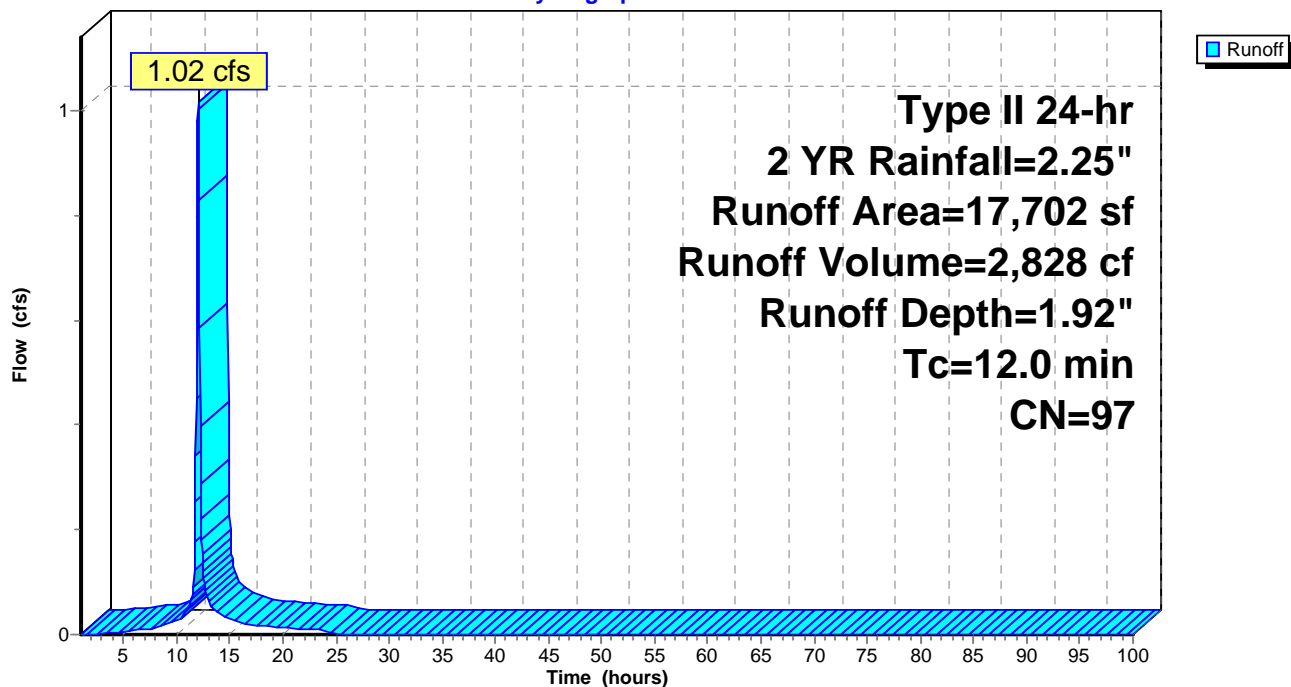
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
16,864	98	Paved parking, HSG D
838	80	>75% Grass cover, Good, HSG D
17,702	97	Weighted Average
838		4.73% Pervious Area
16,864		95.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E4A: E4A**

Hydrograph



### Summary for Subcatchment EM1: Area EM1

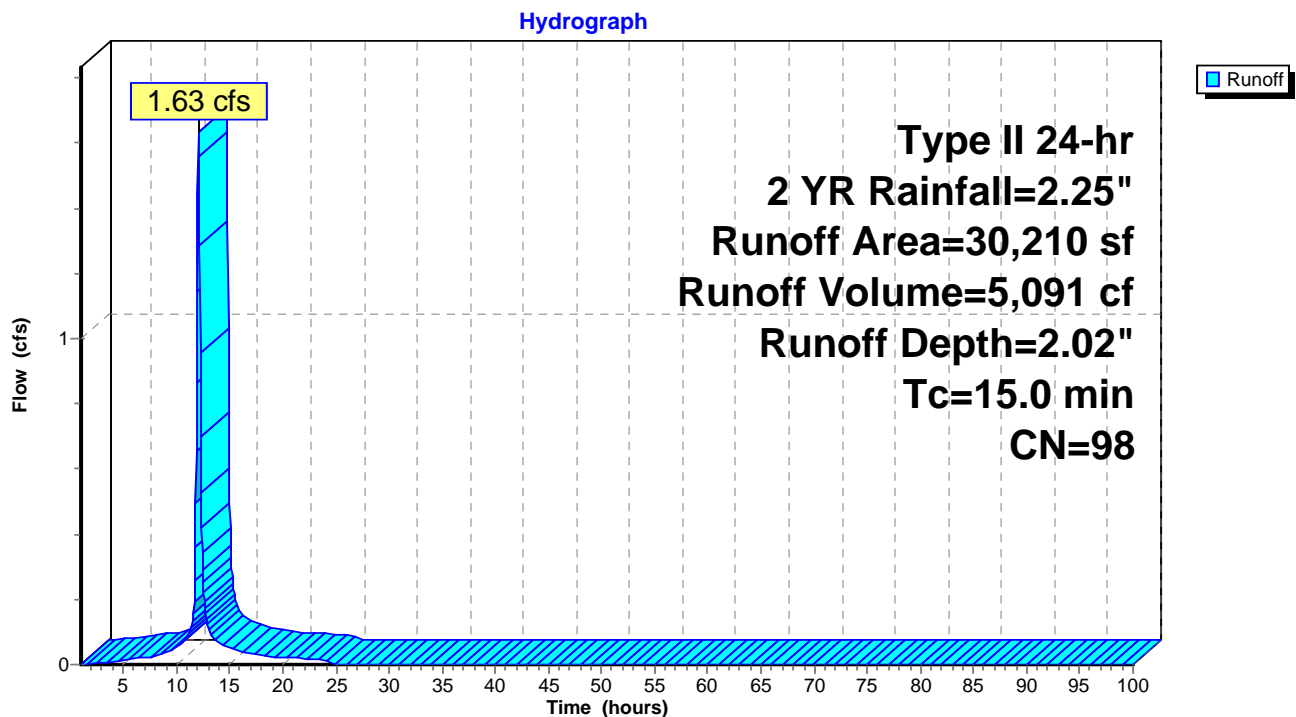
Runoff = 1.63 cfs @ 12.06 hrs, Volume= 5,091 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
210	80	>75% Grass cover, Good, HSG D
30,000	98	Paved parking, HSG D
30,210	98	Weighted Average
210		0.70% Pervious Area
30,000		99.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					Direct Entry,

### Subcatchment EM1: Area EM1



**Summary for Subcatchment EM2: Area EM2**

Runoff = 0.79 cfs @ 12.03 hrs, Volume= 2,267 cf, Depth= 2.02"

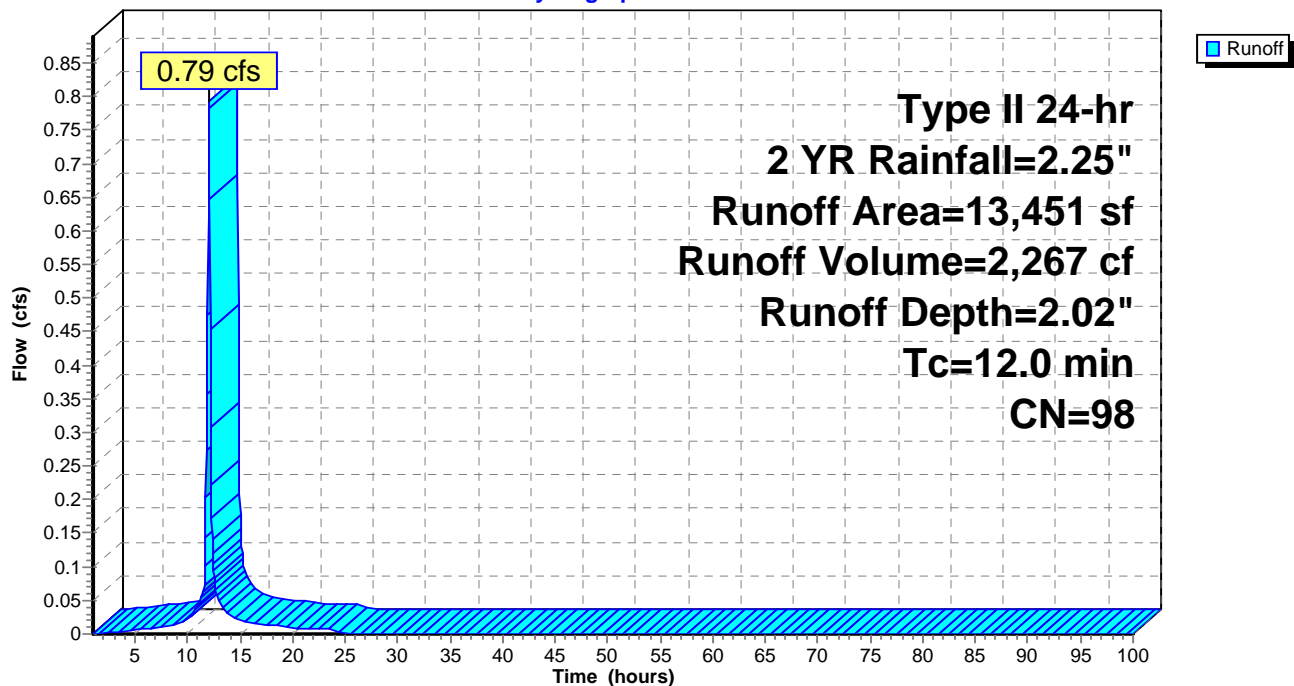
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
13,451	98	Paved parking, HSG D
13,451		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment EM2: Area EM2**

Hydrograph



**Summary for Pond 3P: 84" TRUNK SEWER**

Inflow Area = 97,251 sf, 98.36% Impervious, Inflow Depth = 2.00" for 2 YR event  
 Inflow = 5.53 cfs @ 12.04 hrs, Volume= 16,235 cf  
 Outflow = 5.53 cfs @ 12.04 hrs, Volume= 16,235 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 5.53 cfs @ 12.04 hrs, Volume= 16,235 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 590.92' @ 12.04 hrs

Flood Elev= 647.22'

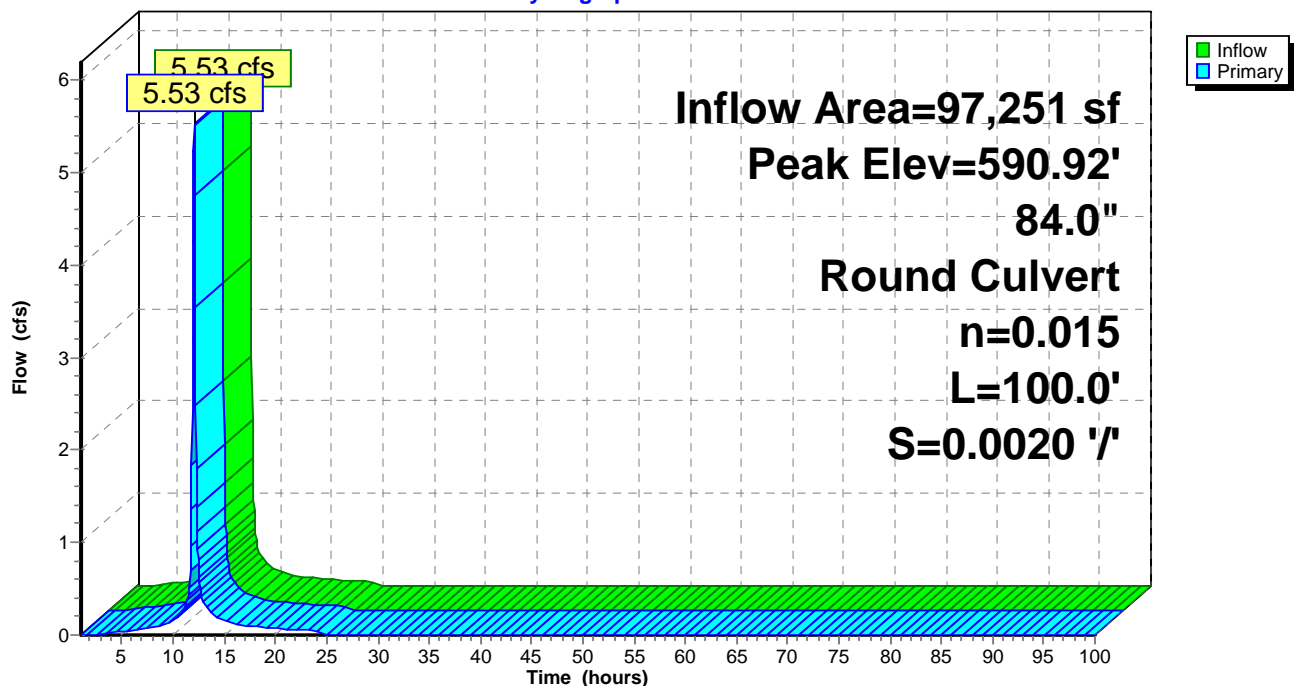
Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	<b>84.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 38.48 sf

**Primary OutFlow** Max=5.44 cfs @ 12.04 hrs HW=590.91' (Free Discharge)

1=Culvert (Barrel Controls 5.44 cfs @ 2.81 fps)

**Pond 3P: 84" TRUNK SEWER**

Hydrograph





**Summary for Pond DI #868: DI #868**

Inflow Area = 18,344 sf, 99.02% Impervious, Inflow Depth = 2.02" for 2 YR event  
 Inflow = 1.08 cfs @ 12.03 hrs, Volume= 3,092 cf  
 Outflow = 1.08 cfs @ 12.03 hrs, Volume= 3,092 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.08 cfs @ 12.03 hrs, Volume= 3,092 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.25' @ 12.03 hrs

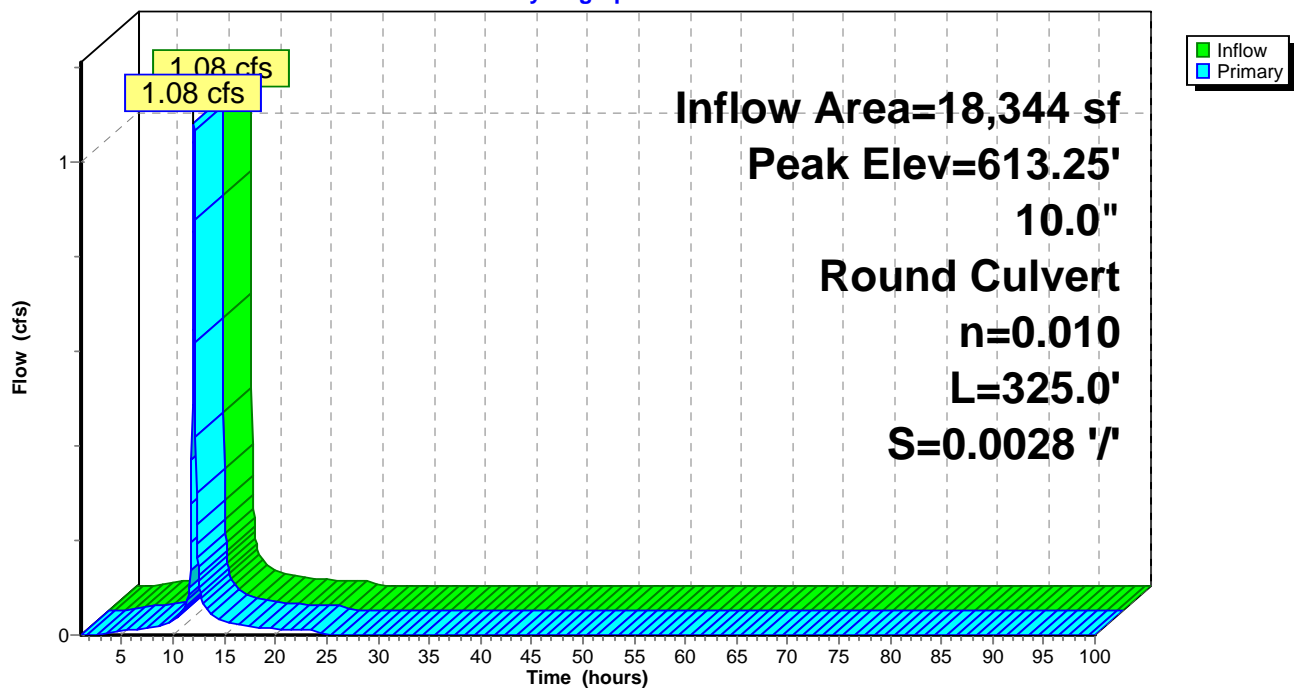
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=1.06 cfs @ 12.03 hrs HW=613.23' TW=590.91' (Dynamic Tailwater)  
 1=Culvert (Barrel Controls 1.06 cfs @ 2.95 fps)

**Pond DI #868: DI #868**

Hydrograph



**Summary for Pond DI #911: DI #911**

Inflow Area = 17,544 sf, 97.93% Impervious, Inflow Depth = 2.02" for 2 YR event  
 Inflow = 1.04 cfs @ 12.03 hrs, Volume= 2,957 cf  
 Outflow = 1.04 cfs @ 12.03 hrs, Volume= 2,957 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.04 cfs @ 12.03 hrs, Volume= 2,957 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.22' @ 12.03 hrs

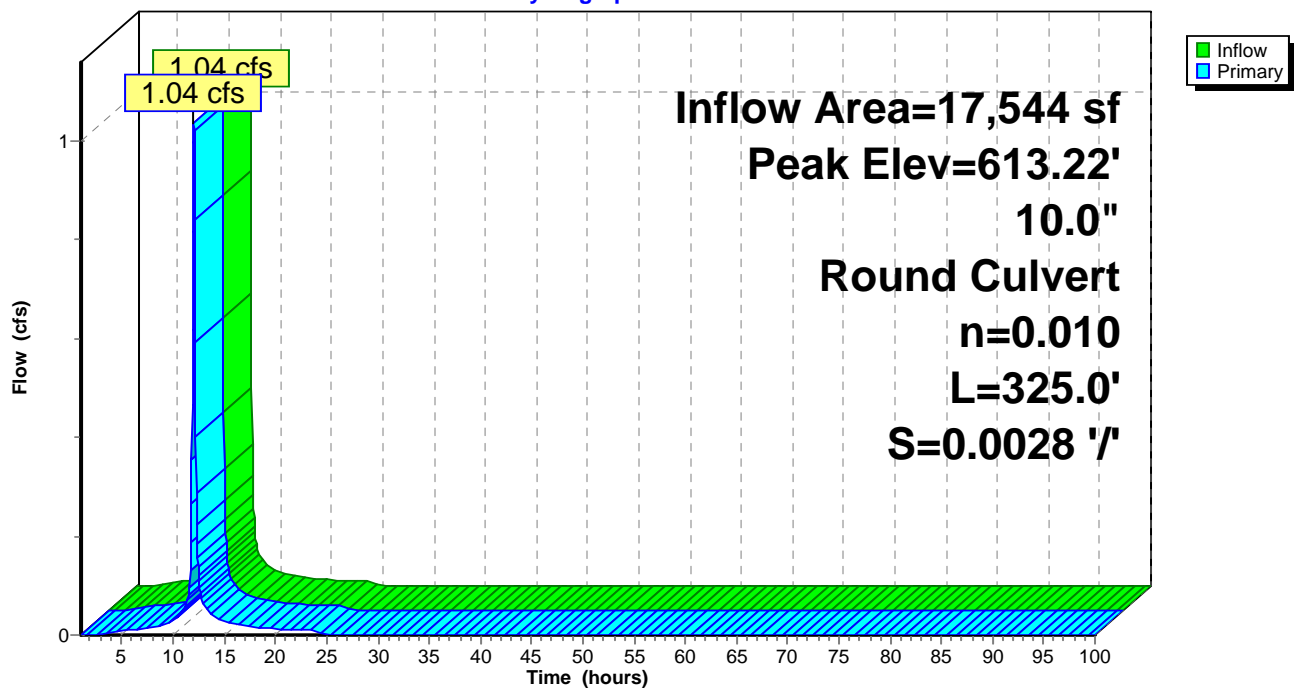
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=1.01 cfs @ 12.03 hrs HW=613.21' TW=590.91' (Dynamic Tailwater)  
 ↳ **1=Culvert** (Barrel Controls 1.01 cfs @ 2.92 fps)

**Pond DI #911: DI #911**

Hydrograph



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Type II 24-hr 25 Year Rainfall=4.00"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E1: EXISTING 1**Runoff Area=17,544 sf 97.93% Impervious Runoff Depth=3.77"  
Tc=12.0 min CN=98 Runoff=1.87 cfs 5,505 cf**Subcatchment E2: EXISTING 2**Runoff Area=18,344 sf 99.02% Impervious Runoff Depth=3.77"  
Tc=12.0 min CN=98 Runoff=1.96 cfs 5,756 cf**Subcatchment E4A: E4A**Runoff Area=17,702 sf 95.27% Impervious Runoff Depth=3.65"  
Tc=12.0 min CN=97 Runoff=1.87 cfs 5,386 cf**Subcatchment EM1: Area EM1**Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=3.77"  
Tc=15.0 min CN=98 Runoff=2.95 cfs 9,479 cf**Subcatchment EM2: Area EM2**Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=3.77"  
Tc=12.0 min CN=98 Runoff=1.43 cfs 4,220 cf**Pond 3P: 84" TRUNK SEWER**Peak Elev=591.22' Inflow=10.02 cfs 30,346 cf  
84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=10.02 cfs 30,346 cf**Pond DI #868: DI #868**Peak Elev=614.31' Inflow=1.96 cfs 5,756 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=1.96 cfs 5,756 cf**Pond DI #911: DI #911**Peak Elev=614.15' Inflow=1.87 cfs 5,505 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=1.87 cfs 5,505 cf**Total Runoff Area = 97,251 sf Runoff Volume = 30,346 cf Average Runoff Depth = 3.74"**  
**1.64% Pervious = 1,591 sf 98.36% Impervious = 95,660 sf**

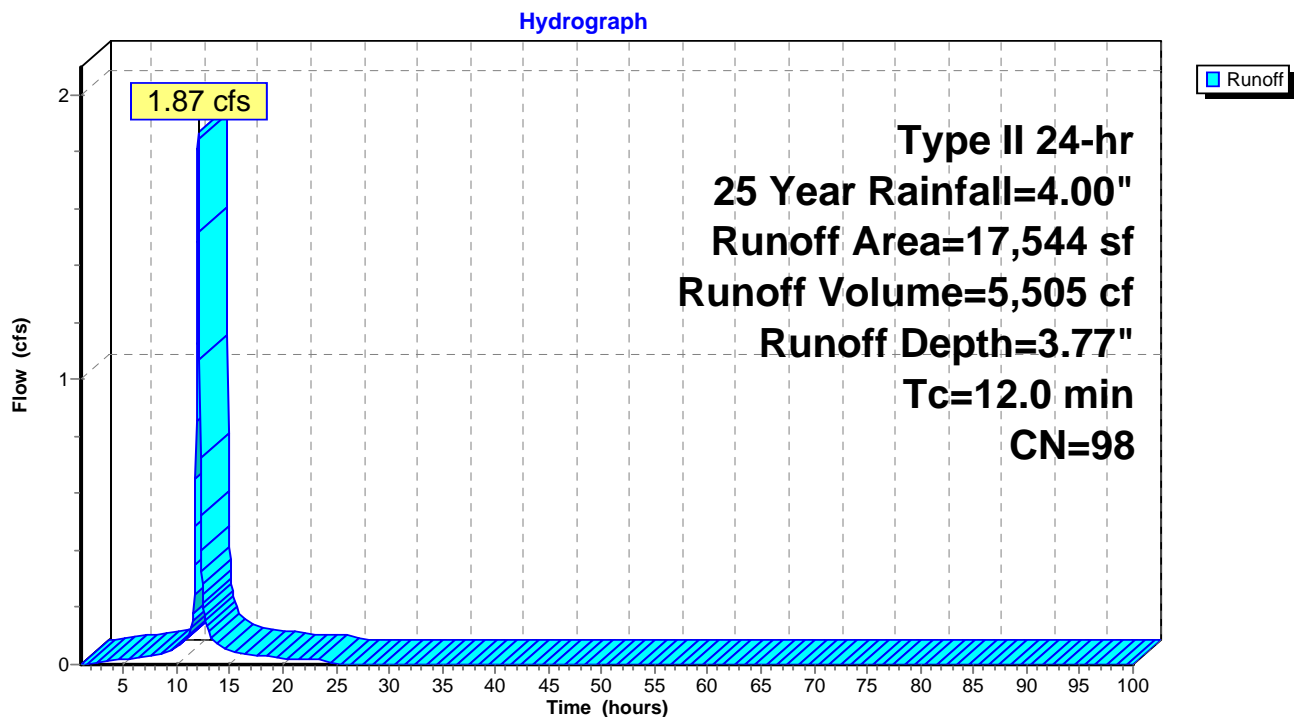
**Summary for Subcatchment E1: EXISTING 1**

Runoff = 1.87 cfs @ 12.03 hrs, Volume= 5,505 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
17,181	98	Paved parking, HSG D
363	80	>75% Grass cover, Good, HSG D
17,544	98	Weighted Average
363		2.07% Pervious Area
17,181		97.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E1: EXISTING 1**

**Summary for Subcatchment E2: EXISTING 2**

Runoff = 1.96 cfs @ 12.03 hrs, Volume= 5,756 cf, Depth= 3.77"

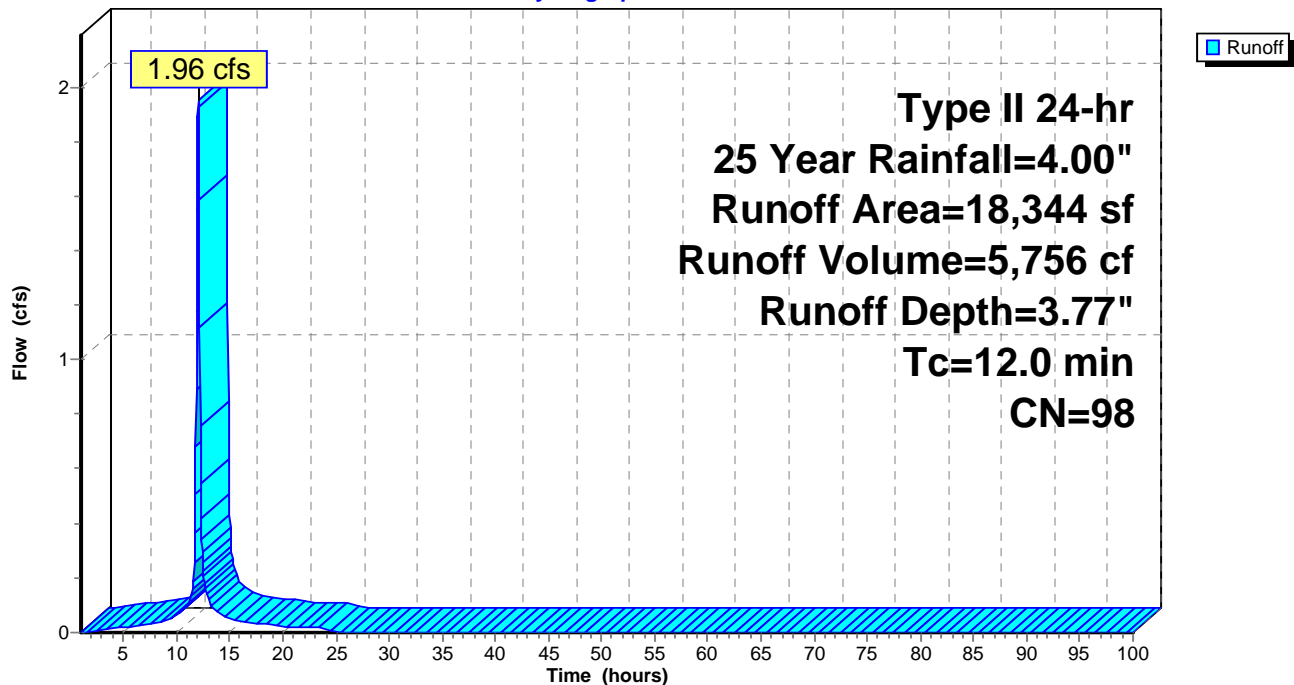
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
18,164	98	Paved parking, HSG D
180	80	>75% Grass cover, Good, HSG D
18,344	98	Weighted Average
180		0.98% Pervious Area
18,164		99.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E2: EXISTING 2**

Hydrograph



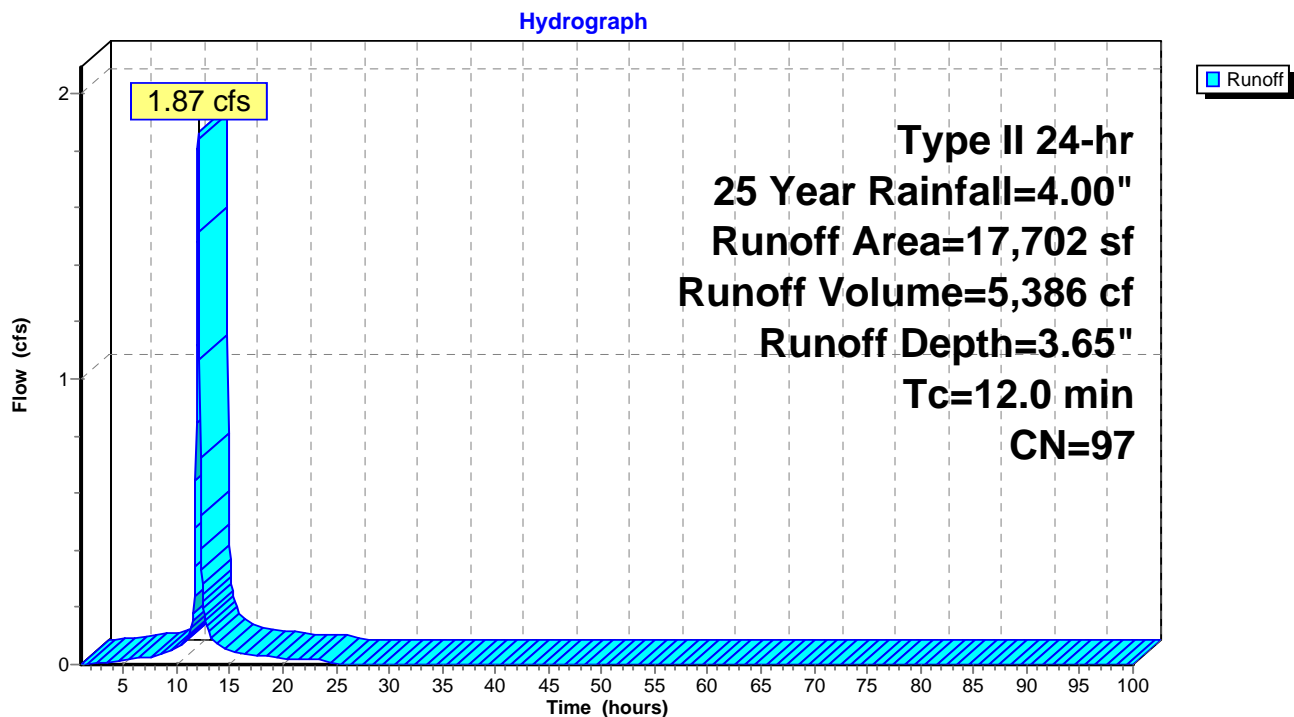
**Summary for Subcatchment E4A: E4A**

Runoff = 1.87 cfs @ 12.03 hrs, Volume= 5,386 cf, Depth= 3.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
16,864	98	Paved parking, HSG D
838	80	>75% Grass cover, Good, HSG D
17,702	97	Weighted Average
838		4.73% Pervious Area
16,864		95.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E4A: E4A**

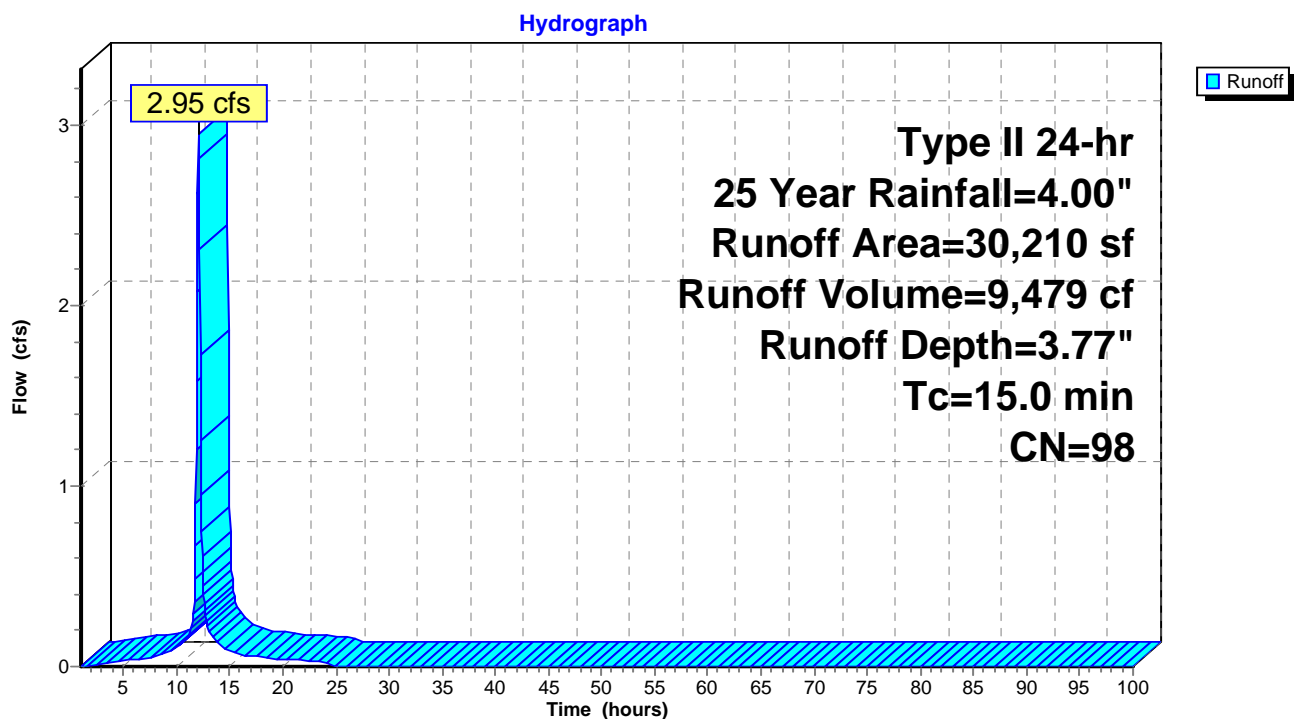
**Summary for Subcatchment EM1: Area EM1**

Runoff = 2.95 cfs @ 12.06 hrs, Volume= 9,479 cf, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
210	80	>75% Grass cover, Good, HSG D
30,000	98	Paved parking, HSG D
30,210	98	Weighted Average
210		0.70% Pervious Area
30,000		99.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					Direct Entry,

**Subcatchment EM1: Area EM1**

**Summary for Subcatchment EM2: Area EM2**

Runoff = 1.43 cfs @ 12.03 hrs, Volume= 4,220 cf, Depth= 3.77"

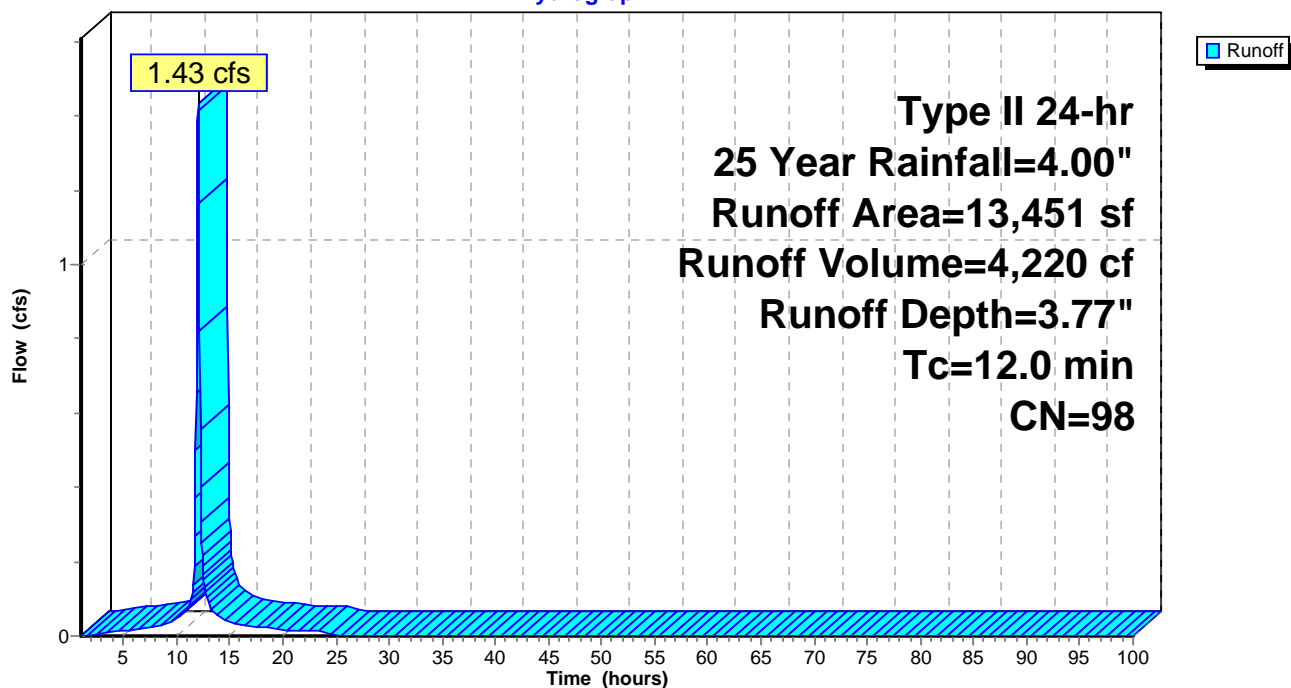
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
13,451	98	Paved parking, HSG D
13,451		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment EM2: Area EM2**

Hydrograph





**Summary for Pond 3P: 84" TRUNK SEWER**

Inflow Area = 97,251 sf, 98.36% Impervious, Inflow Depth = 3.74" for 25 Year event  
 Inflow = 10.02 cfs @ 12.04 hrs, Volume= 30,346 cf  
 Outflow = 10.02 cfs @ 12.04 hrs, Volume= 30,346 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 10.02 cfs @ 12.04 hrs, Volume= 30,346 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 591.22' @ 12.04 hrs

Flood Elev= 647.22'

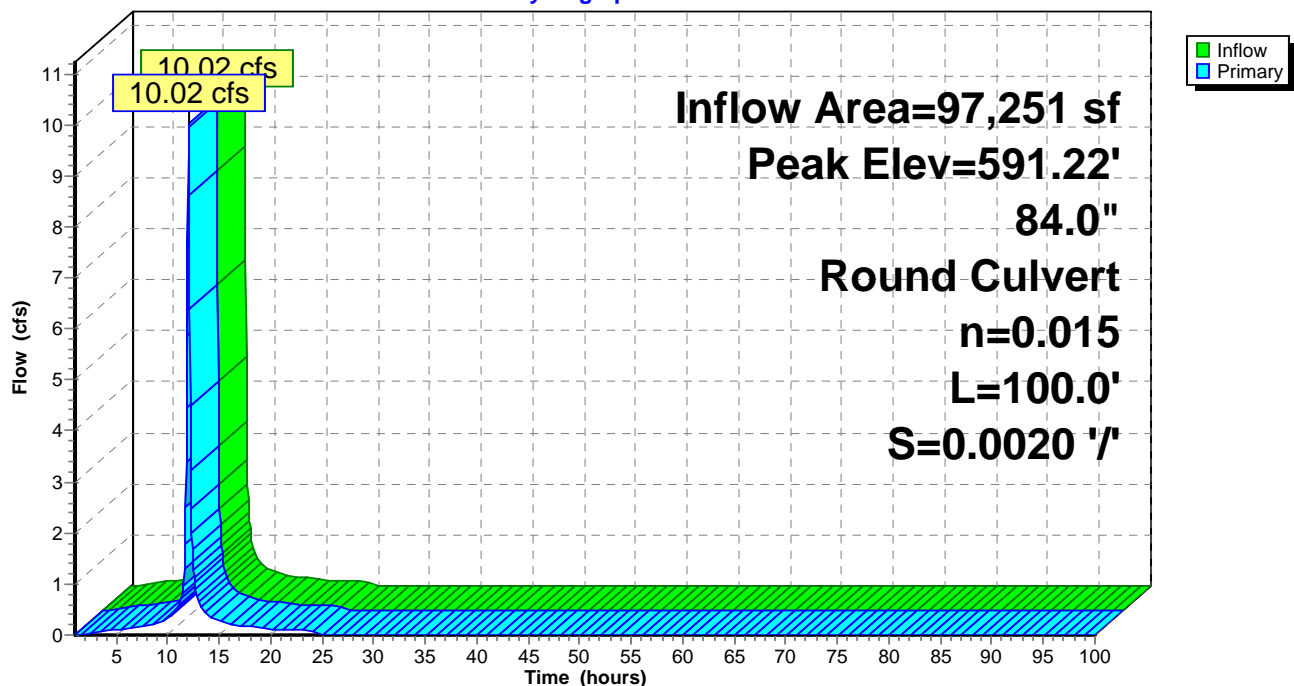
Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	<b>84.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 38.48 sf

**Primary OutFlow** Max=9.85 cfs @ 12.04 hrs HW=591.21' (Free Discharge)

1=Culvert (Barrel Controls 9.85 cfs @ 3.35 fps)

**Pond 3P: 84" TRUNK SEWER**

Hydrograph



**Summary for Pond DI #868: DI #868**

Inflow Area = 18,344 sf, 99.02% Impervious, Inflow Depth = 3.77" for 25 Year event  
 Inflow = 1.96 cfs @ 12.03 hrs, Volume= 5,756 cf  
 Outflow = 1.96 cfs @ 12.03 hrs, Volume= 5,756 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.96 cfs @ 12.03 hrs, Volume= 5,756 cf

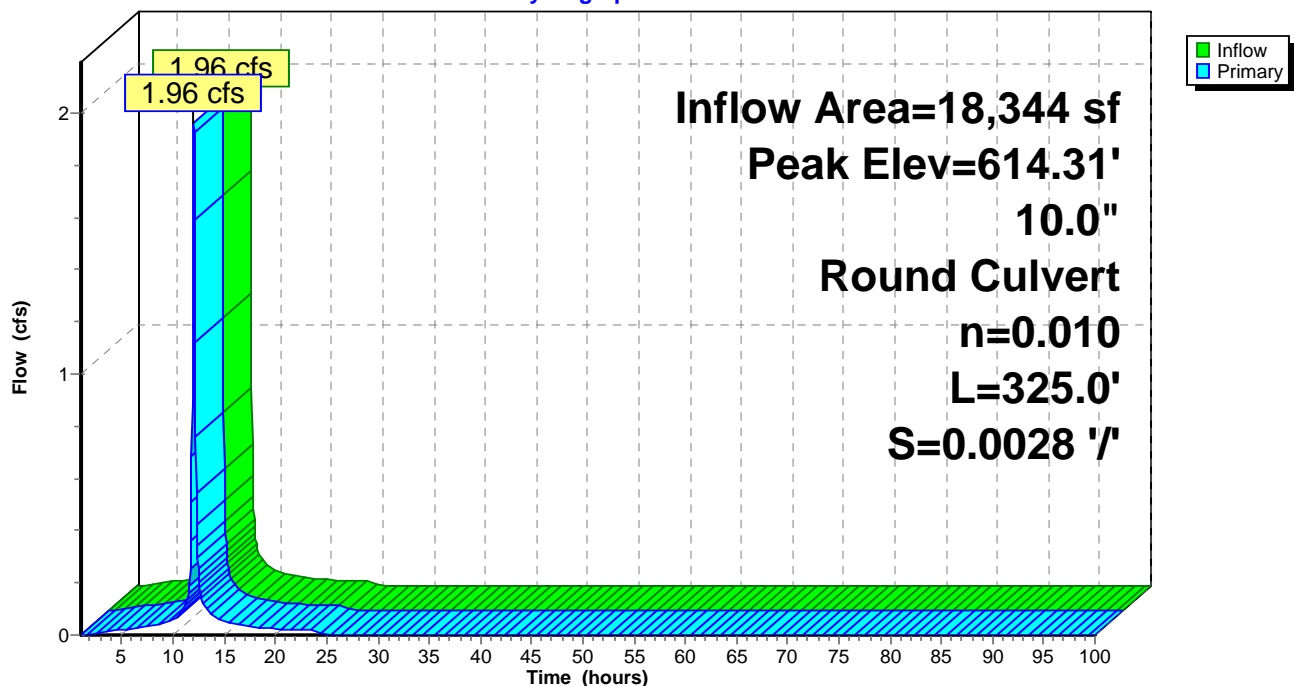
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 614.31' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=1.91 cfs @ 12.03 hrs HW=614.22' TW=591.21' (Dynamic Tailwater)  
 ↳ **1=Culvert** (Barrel Controls 1.91 cfs @ 3.50 fps)

**Pond DI #868: DI #868****Hydrograph**

**Summary for Pond DI #911: DI #911**

Inflow Area = 17,544 sf, 97.93% Impervious, Inflow Depth = 3.77" for 25 Year event  
 Inflow = 1.87 cfs @ 12.03 hrs, Volume= 5,505 cf  
 Outflow = 1.87 cfs @ 12.03 hrs, Volume= 5,505 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.87 cfs @ 12.03 hrs, Volume= 5,505 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 614.15' @ 12.03 hrs

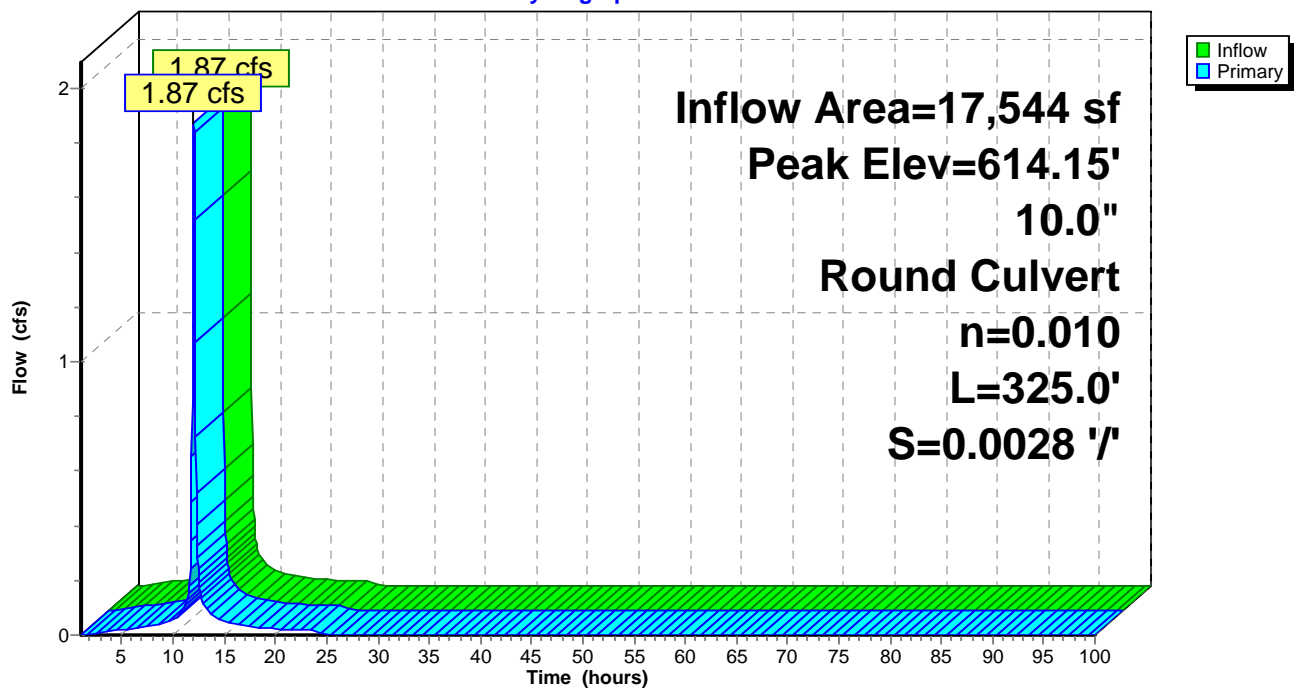
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=1.83 cfs @ 12.03 hrs HW=614.07' TW=591.21' (Dynamic Tailwater)  
 ↳ **1=Culvert** (Barrel Controls 1.83 cfs @ 3.35 fps)

**Pond DI #911: DI #911**

Hydrograph



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*Type II 24-hr 50% Rainfall=0.35"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E1: EXISTING 1**Runoff Area=17,544 sf 97.93% Impervious Runoff Depth=0.19"  
Tc=12.0 min CN=98 Runoff=0.11 cfs 272 cf**Subcatchment E2: EXISTING 2**Runoff Area=18,344 sf 99.02% Impervious Runoff Depth=0.19"  
Tc=12.0 min CN=98 Runoff=0.11 cfs 285 cf**Subcatchment E4A: E4A**Runoff Area=17,702 sf 95.27% Impervious Runoff Depth=0.14"  
Tc=12.0 min CN=97 Runoff=0.08 cfs 205 cf**Subcatchment EM1: Area EM1**Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=0.19"  
Tc=15.0 min CN=98 Runoff=0.17 cfs 469 cf**Subcatchment EM2: Area EM2**Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=0.19"  
Tc=12.0 min CN=98 Runoff=0.08 cfs 209 cf**Pond 3P: 84" TRUNK SEWER**Peak Elev=590.31' Inflow=0.54 cfs 1,440 cf  
84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=0.54 cfs 1,443 cf**Pond DI #868: DI #868**Peak Elev=612.75' Inflow=0.11 cfs 285 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.11 cfs 285 cf**Pond DI #911: DI #911**Peak Elev=612.74' Inflow=0.11 cfs 272 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.11 cfs 273 cf**Total Runoff Area = 97,251 sf Runoff Volume = 1,440 cf Average Runoff Depth = 0.18"**  
**1.64% Pervious = 1,591 sf 98.36% Impervious = 95,660 sf**

**Summary for Subcatchment E1: EXISTING 1**

Runoff = 0.11 cfs @ 12.04 hrs, Volume= 272 cf, Depth= 0.19"

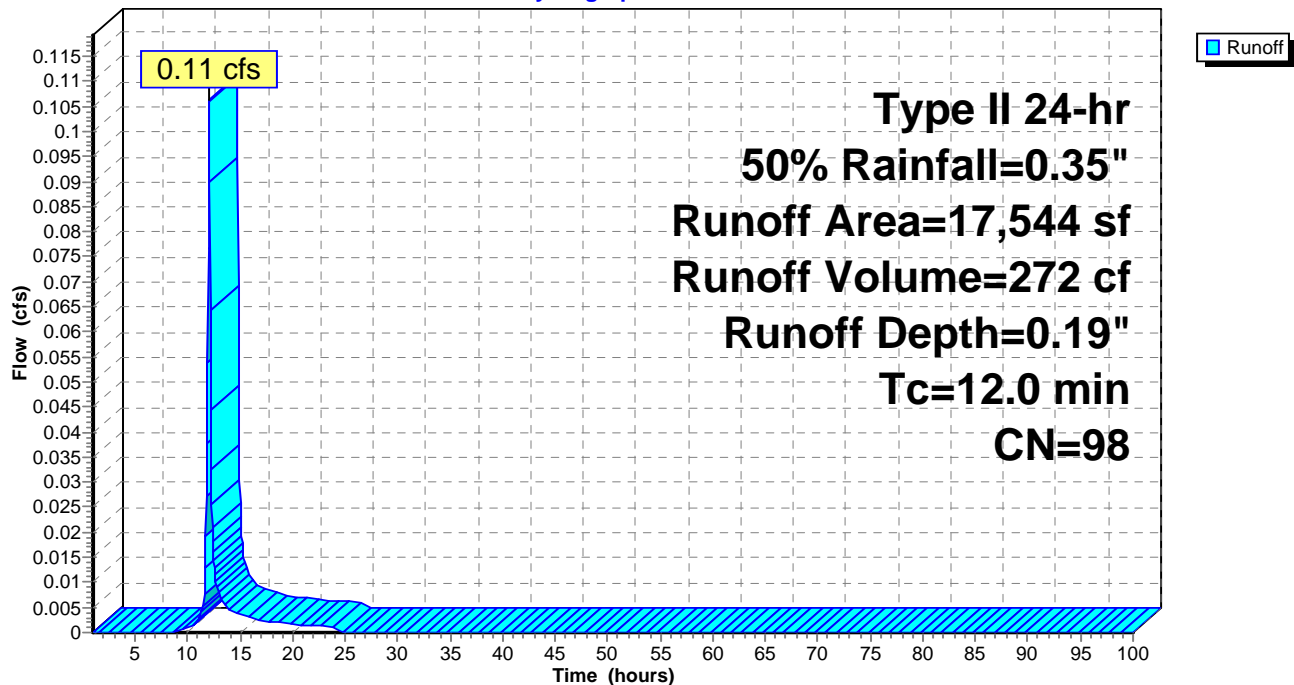
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
17,181	98	Paved parking, HSG D
363	80	>75% Grass cover, Good, HSG D
17,544	98	Weighted Average
363		2.07% Pervious Area
17,181		97.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E1: EXISTING 1**

Hydrograph



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Type II 24-hr 50% Rainfall=0.35"

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**Summary for Subcatchment E2: EXISTING 2**

Runoff = 0.11 cfs @ 12.04 hrs, Volume= 285 cf, Depth= 0.19"

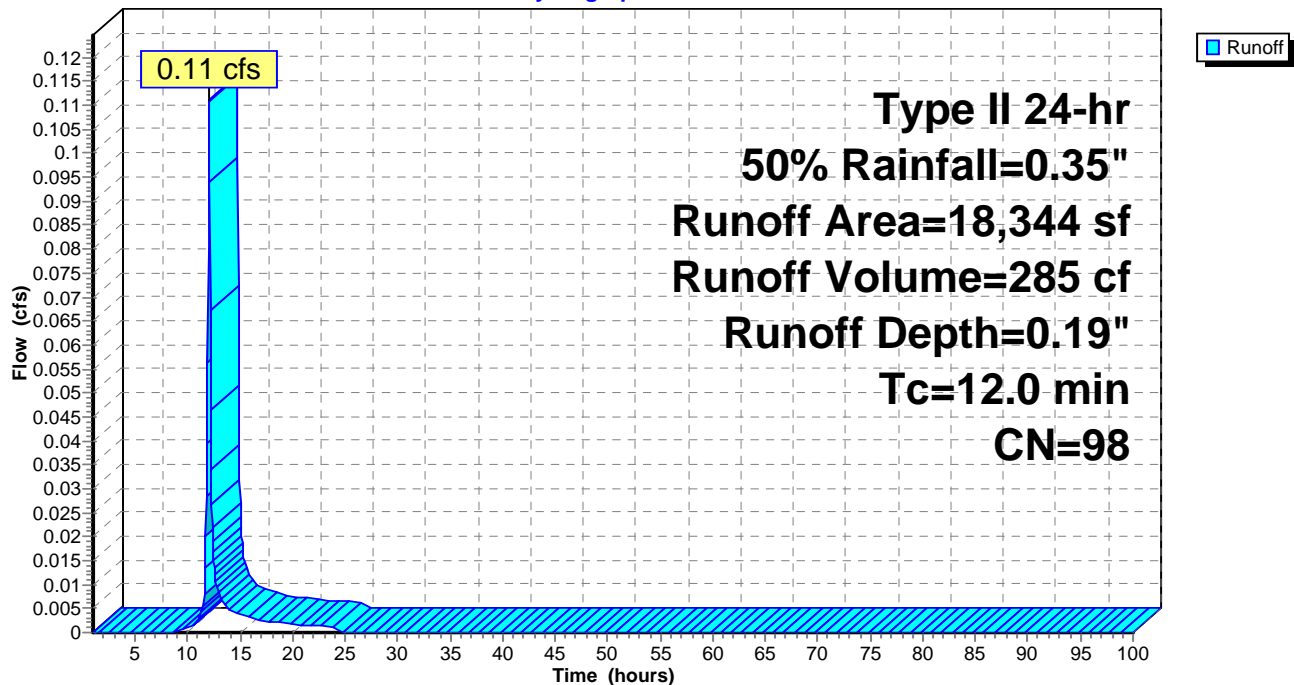
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
18,164	98	Paved parking, HSG D
180	80	>75% Grass cover, Good, HSG D
18,344	98	Weighted Average
180		0.98% Pervious Area
18,164		99.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E2: EXISTING 2**

Hydrograph



**Summary for Subcatchment E4A: E4A**

Runoff = 0.08 cfs @ 12.04 hrs, Volume= 205 cf, Depth= 0.14"

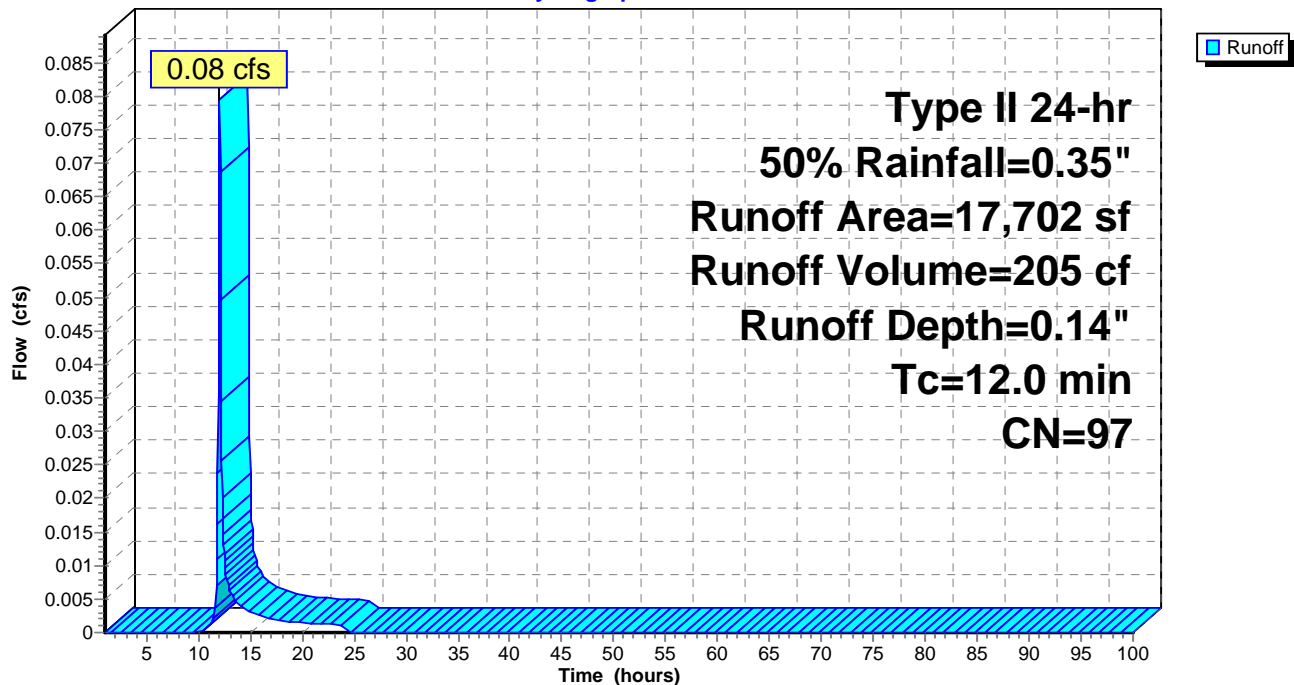
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
16,864	98	Paved parking, HSG D
838	80	>75% Grass cover, Good, HSG D
17,702	97	Weighted Average
838		4.73% Pervious Area
16,864		95.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E4A: E4A**

Hydrograph



**Summary for Subcatchment EM1: Area EM1**

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 469 cf, Depth= 0.19"

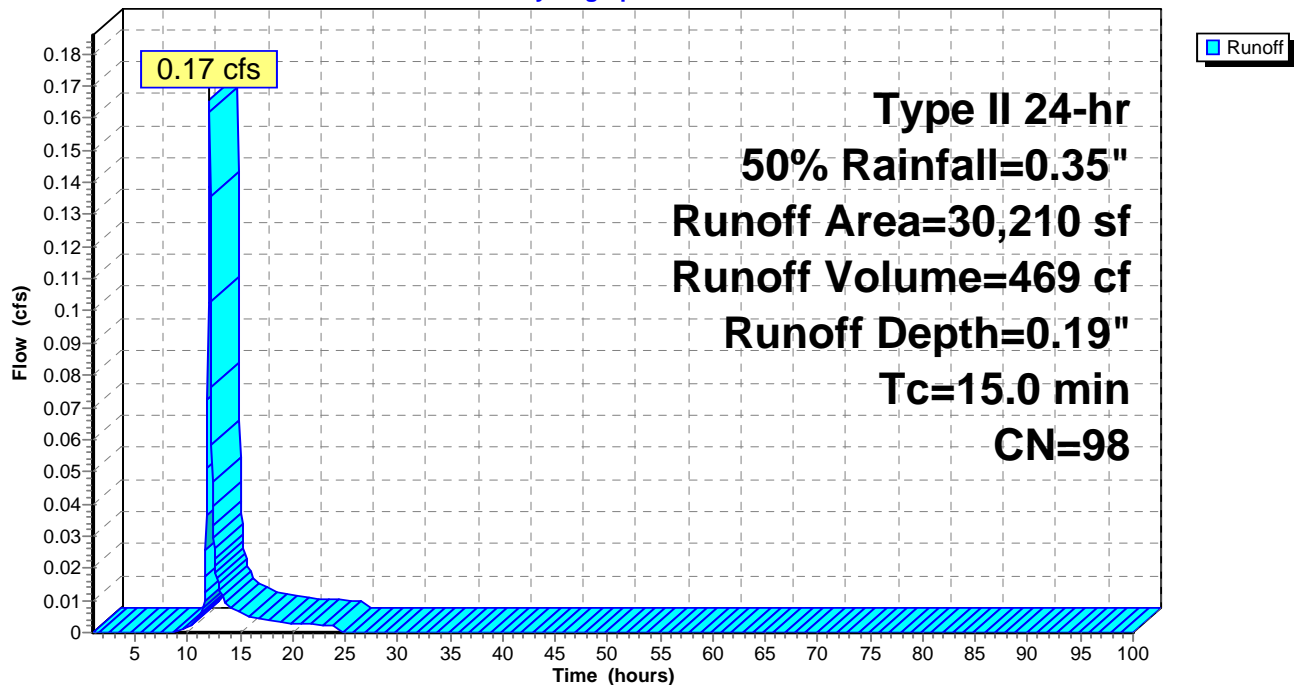
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
210	80	>75% Grass cover, Good, HSG D
30,000	98	Paved parking, HSG D
30,210	98	Weighted Average
210		0.70% Pervious Area
30,000		99.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					Direct Entry,

**Subcatchment EM1: Area EM1**

Hydrograph





**Summary for Subcatchment EM2: Area EM2**

Runoff = 0.08 cfs @ 12.04 hrs, Volume= 209 cf, Depth= 0.19"

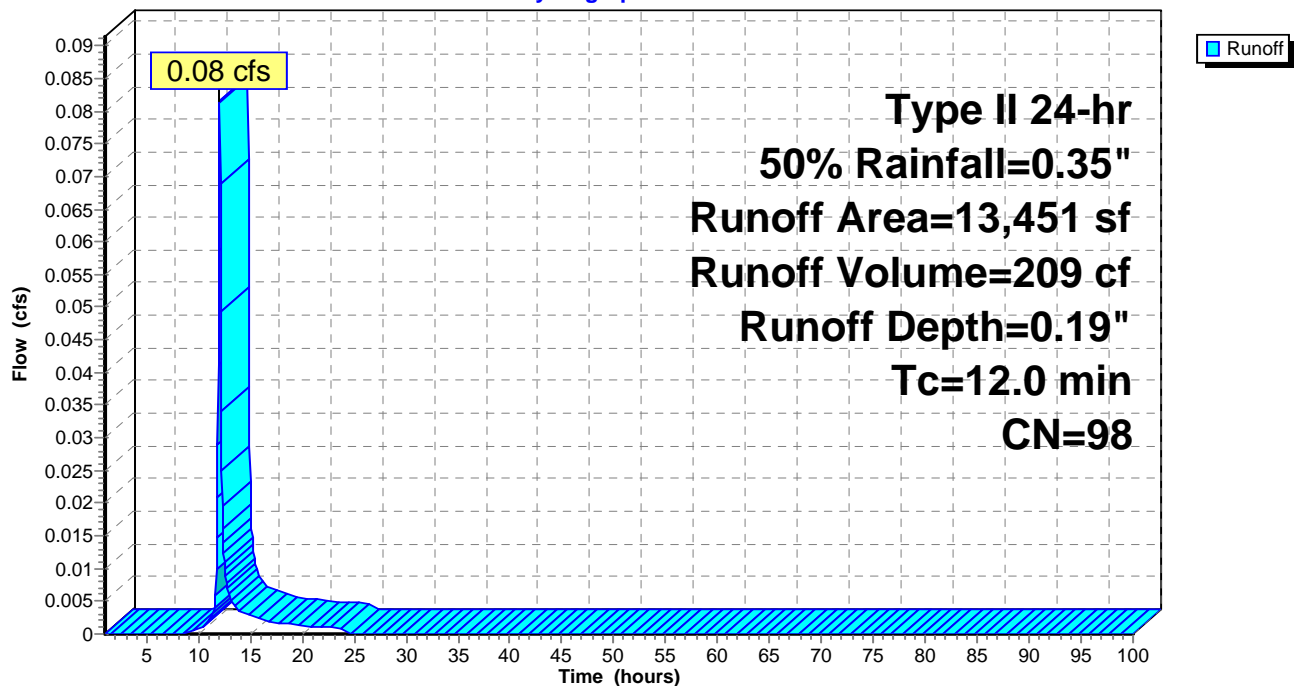
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
13,451	98	Paved parking, HSG D
13,451		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment EM2: Area EM2**

Hydrograph



### Summary for Pond 3P: 84" TRUNK SEWER

Inflow Area = 97,251 sf, 98.36% Impervious, Inflow Depth = 0.18" for 50% event  
 Inflow = 0.54 cfs @ 12.05 hrs, Volume= 1,440 cf  
 Outflow = 0.54 cfs @ 12.05 hrs, Volume= 1,443 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.54 cfs @ 12.05 hrs, Volume= 1,443 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 590.31' @ 12.05 hrs

Flood Elev= 647.22'

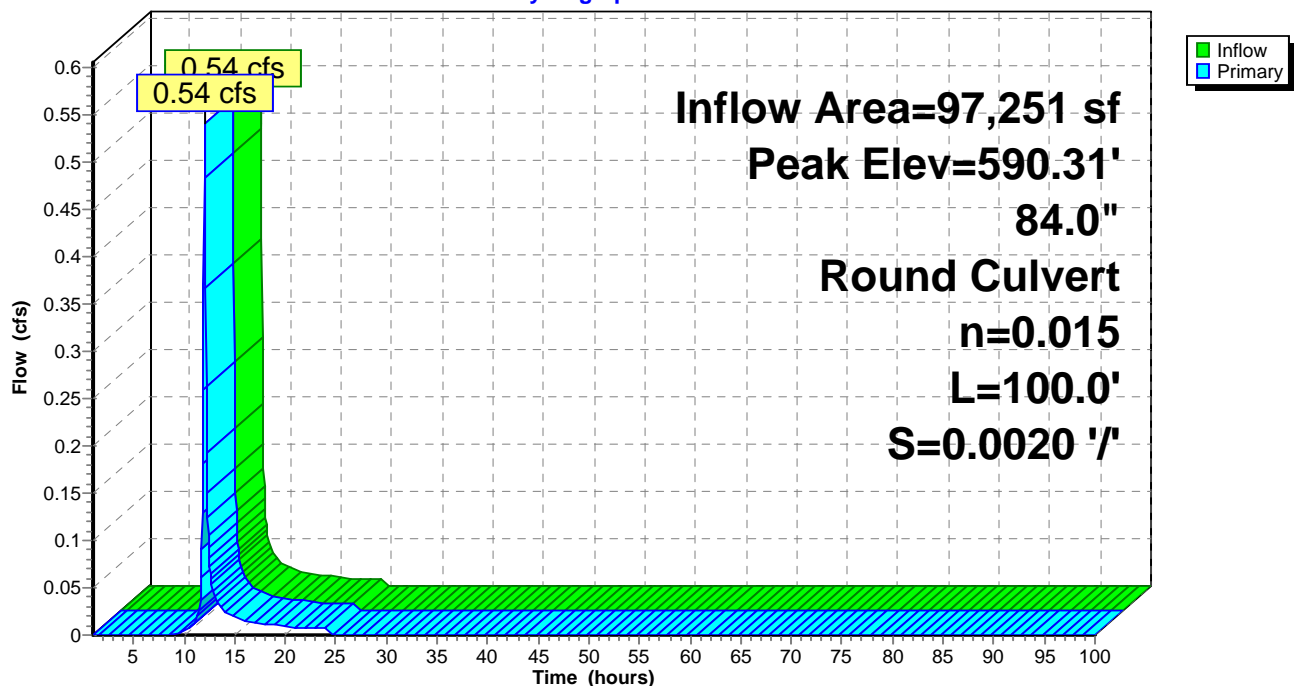
Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	<b>84.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 38.48 sf

**Primary OutFlow** Max=0.54 cfs @ 12.05 hrs HW=590.31' (Free Discharge)

1=Culvert (Barrel Controls 0.54 cfs @ 1.37 fps)

### Pond 3P: 84" TRUNK SEWER

Hydrograph



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Type II 24-hr 50% Rainfall=0.35"

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**Summary for Pond DI #868: DI #868**

Inflow Area = 18,344 sf, 99.02% Impervious, Inflow Depth = 0.19" for 50% event  
Inflow = 0.11 cfs @ 12.04 hrs, Volume= 285 cf  
Outflow = 0.11 cfs @ 12.04 hrs, Volume= 285 cf, Atten= 0%, Lag= 0.0 min  
Primary = 0.11 cfs @ 12.04 hrs, Volume= 285 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

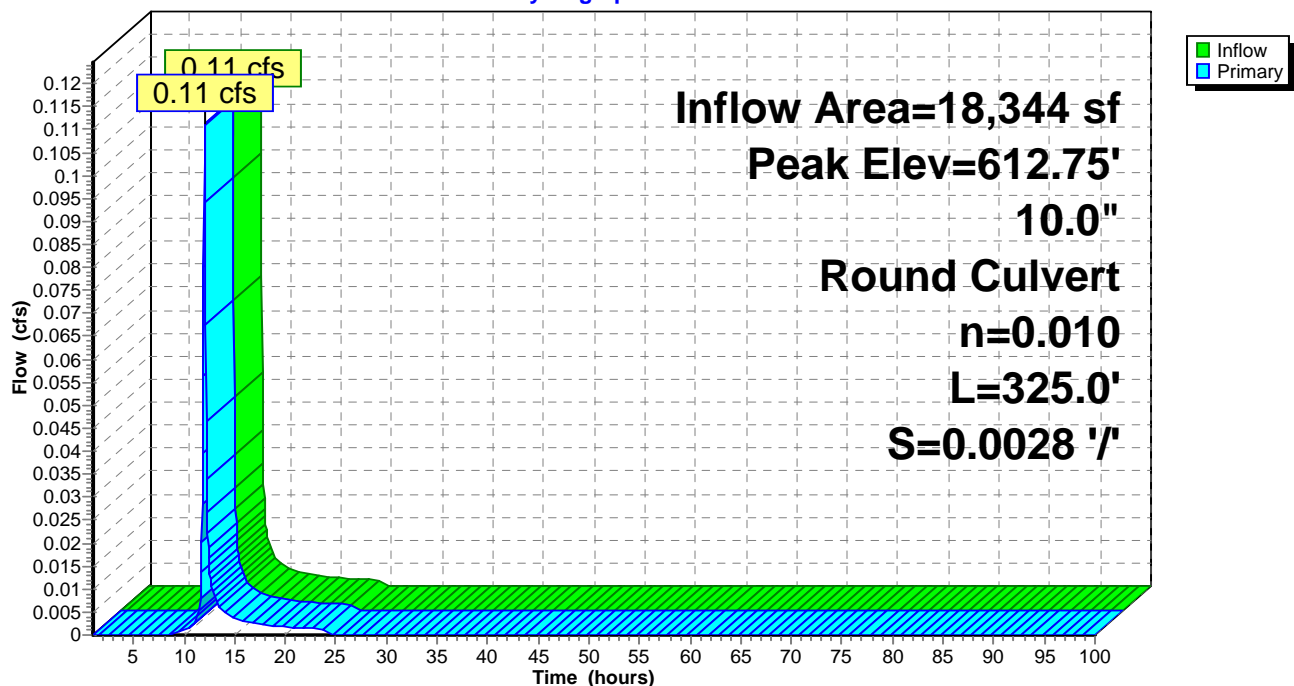
Peak Elev= 612.75' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.11 cfs @ 12.04 hrs HW=612.74' TW=590.31' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.11 cfs @ 1.60 fps)

**Pond DI #868: DI #868****Hydrograph**

**Summary for Pond DI #911: DI #911**

Inflow Area = 17,544 sf, 97.93% Impervious, Inflow Depth = 0.19" for 50% event  
 Inflow = 0.11 cfs @ 12.04 hrs, Volume= 272 cf  
 Outflow = 0.11 cfs @ 12.04 hrs, Volume= 273 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.11 cfs @ 12.04 hrs, Volume= 273 cf

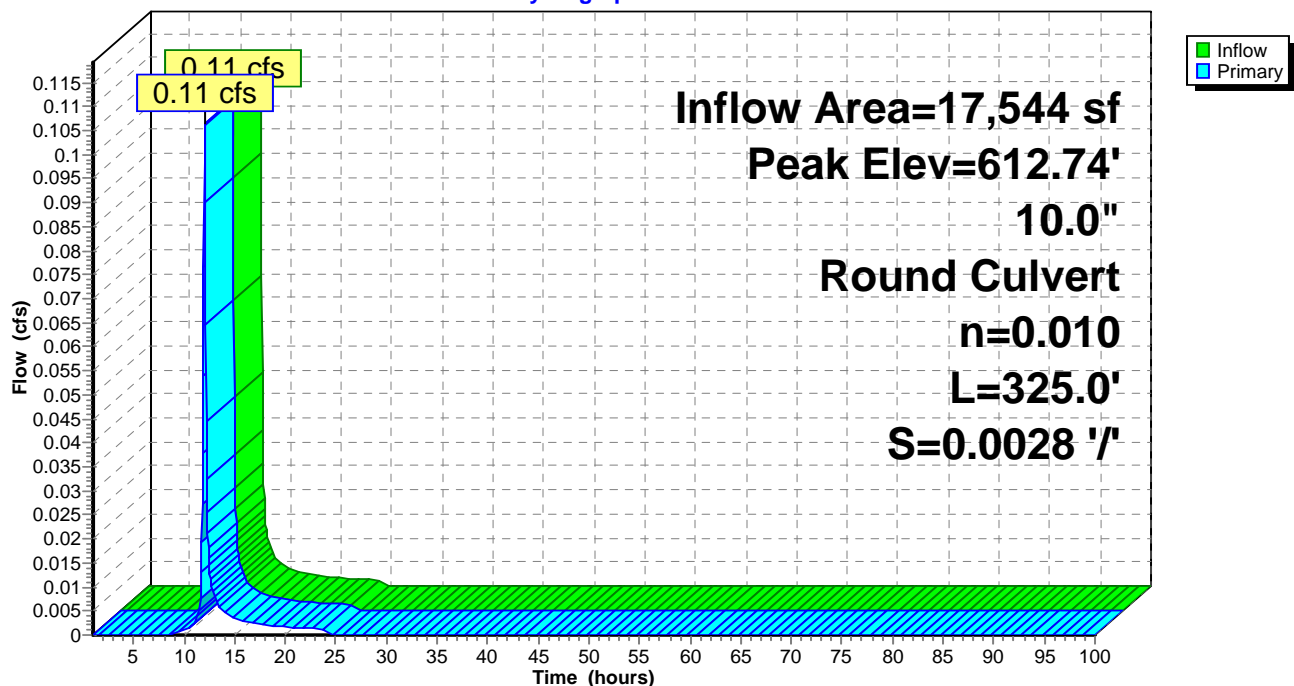
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.74' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.10 cfs @ 12.04 hrs HW=612.74' TW=590.31' (Dynamic Tailwater)  
 ↳ **1=Culvert** (Barrel Controls 0.10 cfs @ 1.58 fps)

**Pond DI #911: DI #911****Hydrograph**

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*Type II 24-hr 75% Rainfall=0.50"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E1: EXISTING 1**Runoff Area=17,544 sf 97.93% Impervious Runoff Depth=0.32"  
Tc=12.0 min CN=98 Runoff=0.18 cfs 465 cf**Subcatchment E2: EXISTING 2**Runoff Area=18,344 sf 99.02% Impervious Runoff Depth=0.32"  
Tc=12.0 min CN=98 Runoff=0.19 cfs 486 cf**Subcatchment E4A: E4A**Runoff Area=17,702 sf 95.27% Impervious Runoff Depth=0.26"  
Tc=12.0 min CN=97 Runoff=0.15 cfs 379 cf**Subcatchment EM1: Area EM1**Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=0.32"  
Tc=15.0 min CN=98 Runoff=0.28 cfs 800 cf**Subcatchment EM2: Area EM2**Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=0.32"  
Tc=12.0 min CN=98 Runoff=0.14 cfs 356 cf**Pond 3P: 84" TRUNK SEWER**Peak Elev=590.40' Inflow=0.93 cfs 2,487 cf  
84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=0.93 cfs 2,489 cf**Pond DI #868: DI #868**Peak Elev=612.81' Inflow=0.19 cfs 486 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.19 cfs 486 cf**Pond DI #911: DI #911**Peak Elev=612.80' Inflow=0.18 cfs 465 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.18 cfs 465 cf**Total Runoff Area = 97,251 sf Runoff Volume = 2,486 cf Average Runoff Depth = 0.31"**  
**1.64% Pervious = 1,591 sf 98.36% Impervious = 95,660 sf**

**Summary for Subcatchment E1: EXISTING 1**

Runoff = 0.18 cfs @ 12.04 hrs, Volume= 465 cf, Depth= 0.32"

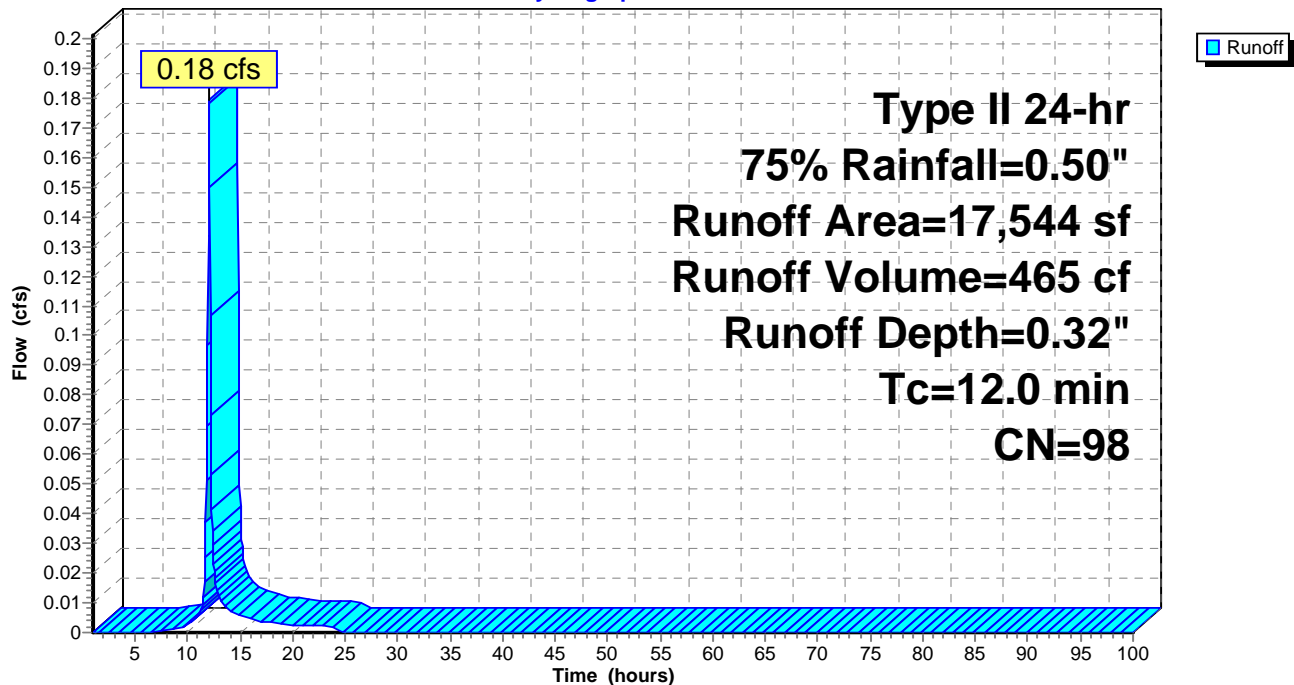
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
17,181	98	Paved parking, HSG D
363	80	>75% Grass cover, Good, HSG D
17,544	98	Weighted Average
363		2.07% Pervious Area
17,181		97.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E1: EXISTING 1**

Hydrograph



**Summary for Subcatchment E2: EXISTING 2**

Runoff = 0.19 cfs @ 12.04 hrs, Volume= 486 cf, Depth= 0.32"

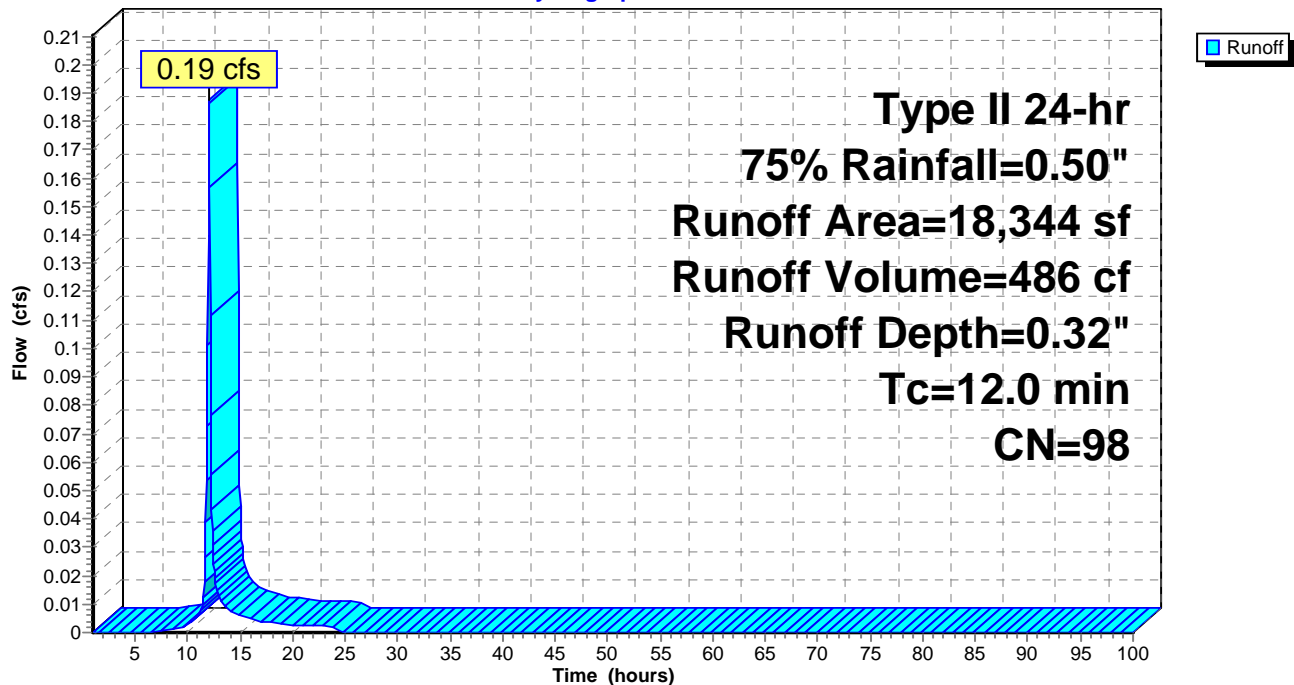
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
18,164	98	Paved parking, HSG D
180	80	>75% Grass cover, Good, HSG D
18,344	98	Weighted Average
180		0.98% Pervious Area
18,164		99.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E2: EXISTING 2**

Hydrograph



**Summary for Subcatchment E4A: E4A**

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 379 cf, Depth= 0.26"

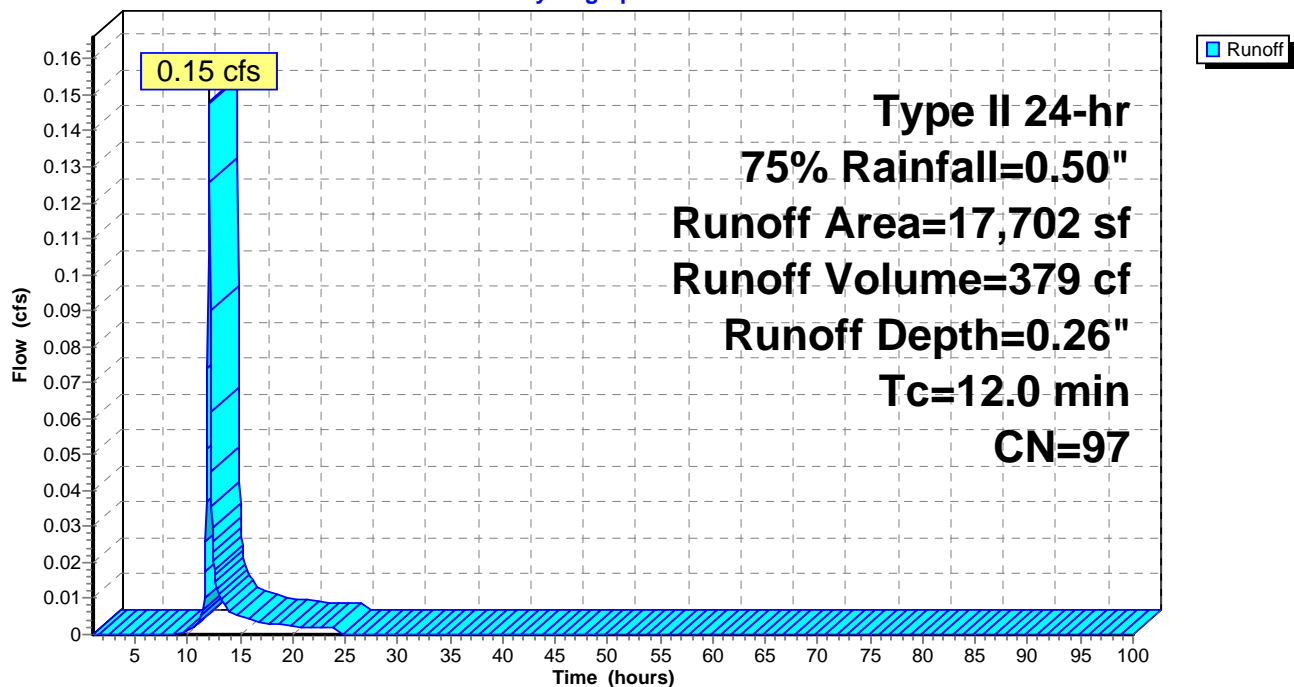
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
16,864	98	Paved parking, HSG D
838	80	>75% Grass cover, Good, HSG D
17,702	97	Weighted Average
838		4.73% Pervious Area
16,864		95.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E4A: E4A**

Hydrograph





**Summary for Subcatchment EM1: Area EM1**

Runoff = 0.28 cfs @ 12.07 hrs, Volume= 800 cf, Depth= 0.32"

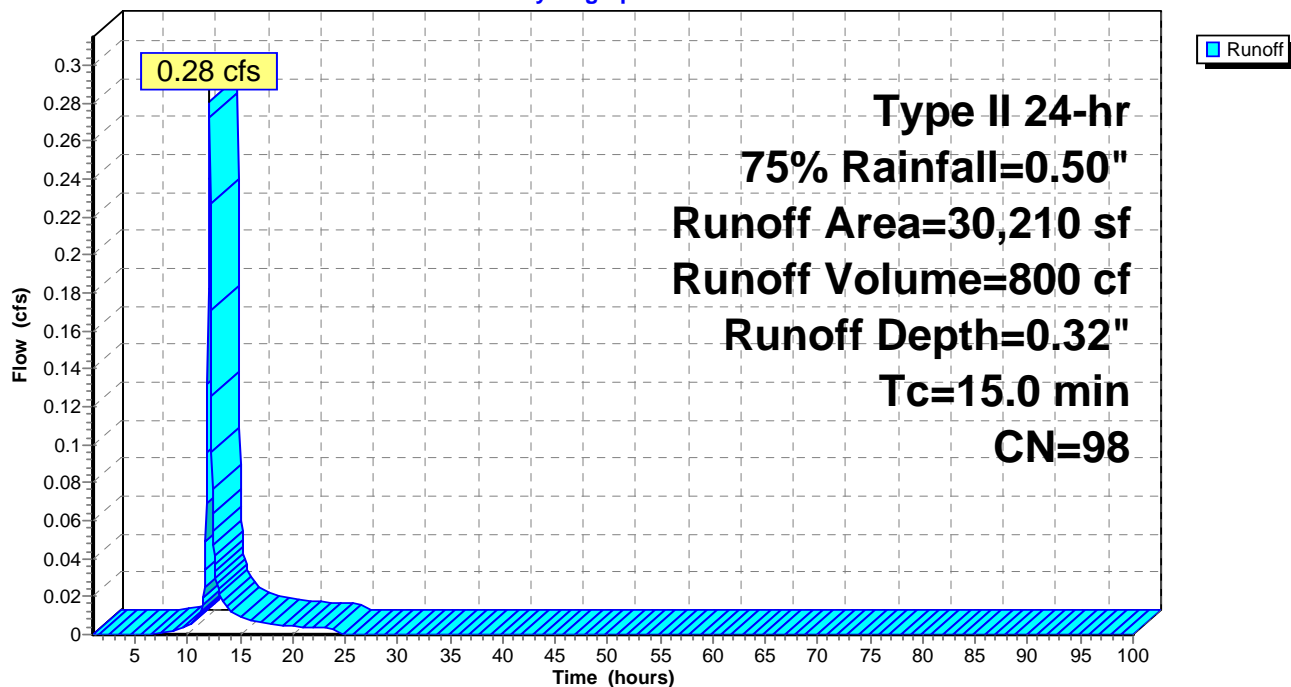
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
210	80	>75% Grass cover, Good, HSG D
30,000	98	Paved parking, HSG D
30,210	98	Weighted Average
210		0.70% Pervious Area
30,000		99.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					Direct Entry,

**Subcatchment EM1: Area EM1**

Hydrograph



**Summary for Subcatchment EM2: Area EM2**

Runoff = 0.14 cfs @ 12.04 hrs, Volume= 356 cf, Depth= 0.32"

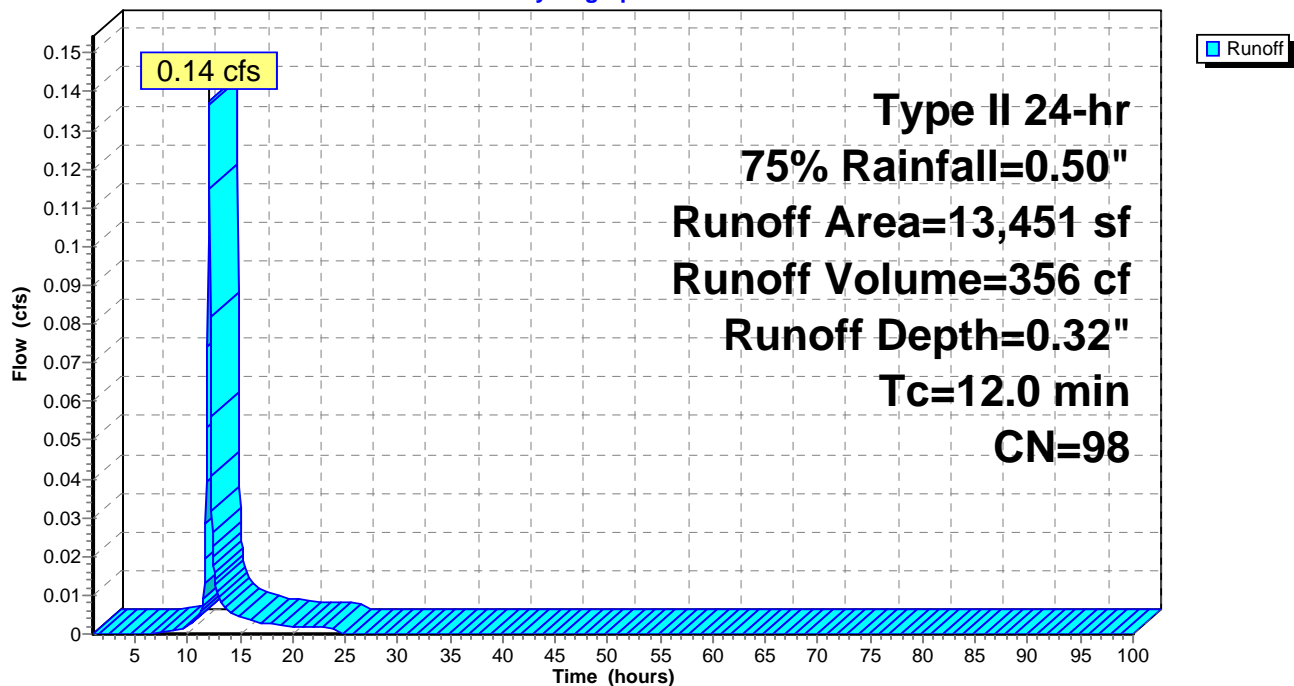
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
13,451	98	Paved parking, HSG D
13,451		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment EM2: Area EM2**

Hydrograph



**Summary for Pond 3P: 84" TRUNK SEWER**

Inflow Area = 97,251 sf, 98.36% Impervious, Inflow Depth = 0.31" for 75% event  
 Inflow = 0.93 cfs @ 12.05 hrs, Volume= 2,487 cf  
 Outflow = 0.93 cfs @ 12.05 hrs, Volume= 2,489 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.93 cfs @ 12.05 hrs, Volume= 2,489 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 590.40' @ 12.04 hrs

Flood Elev= 647.22'

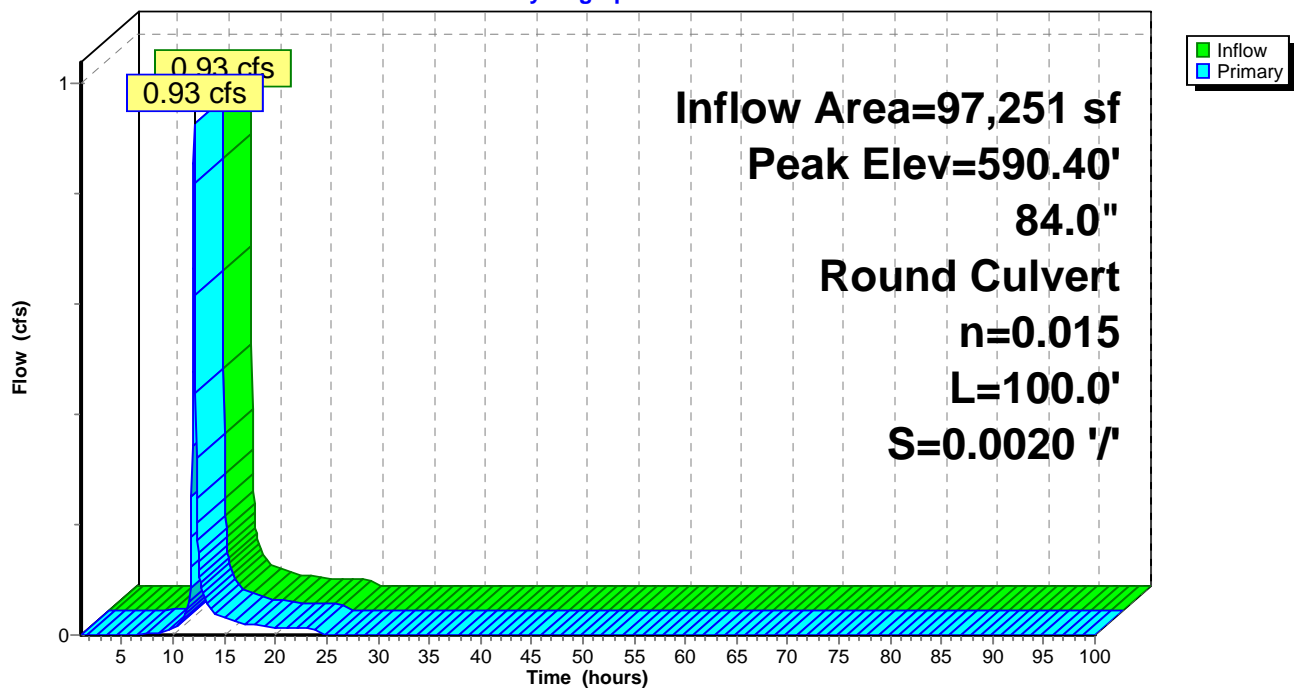
Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	<b>84.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 38.48 sf

**Primary OutFlow** Max=0.92 cfs @ 12.05 hrs HW=590.40' (Free Discharge)

1=Culvert (Barrel Controls 0.92 cfs @ 1.62 fps)

**Pond 3P: 84" TRUNK SEWER**

Hydrograph



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Type II 24-hr 75% Rainfall=0.50"

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## Summary for Pond DI #868: DI #868

Inflow Area = 18,344 sf, 99.02% Impervious, Inflow Depth = 0.32" for 75% event  
Inflow = 0.19 cfs @ 12.04 hrs, Volume= 486 cf  
Outflow = 0.19 cfs @ 12.04 hrs, Volume= 486 cf, Atten= 0%, Lag= 0.0 min  
Primary = 0.19 cfs @ 12.04 hrs, Volume= 486 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.81' @ 12.04 hrs

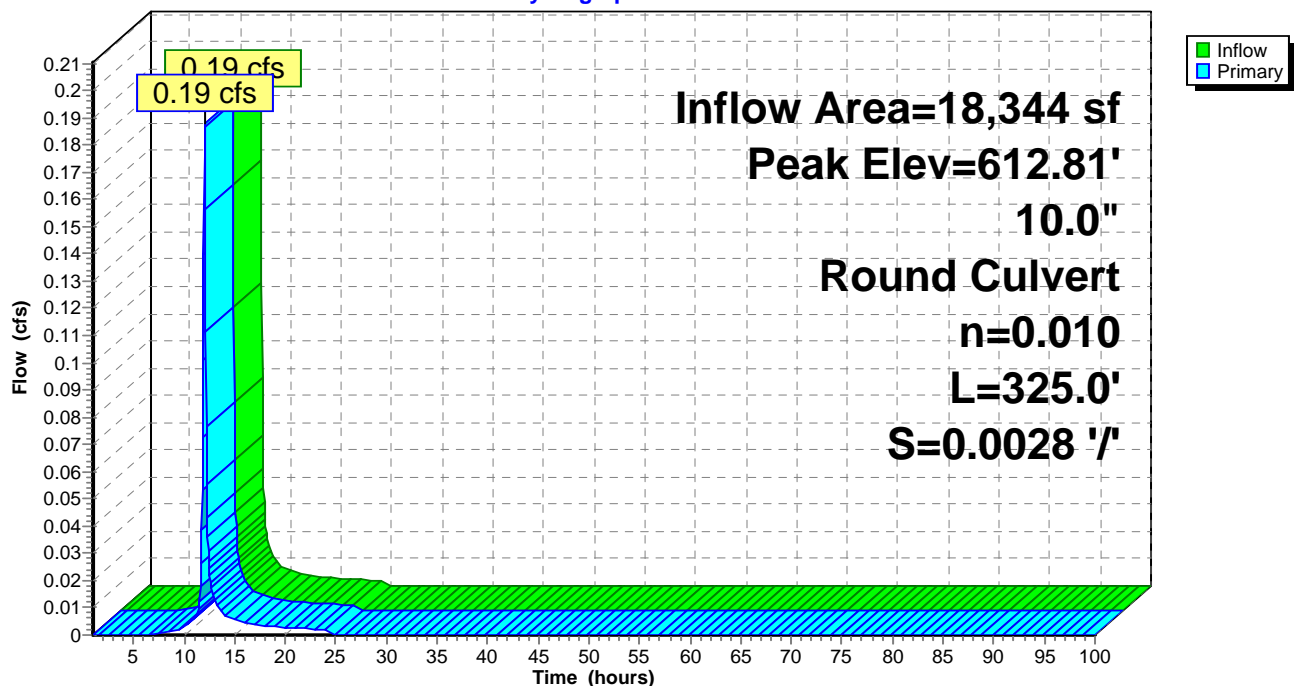
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.18 cfs @ 12.04 hrs HW=612.80' TW=590.40' (Dynamic Tailwater)  
↑**1=Culvert** (Barrel Controls 0.18 cfs @ 1.86 fps)

## Pond DI #868: DI #868

### Hydrograph



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Type II 24-hr 75% Rainfall=0.50"

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### Summary for Pond DI #911: DI #911

Inflow Area = 17,544 sf, 97.93% Impervious, Inflow Depth = 0.32" for 75% event  
Inflow = 0.18 cfs @ 12.04 hrs, Volume= 465 cf  
Outflow = 0.18 cfs @ 12.04 hrs, Volume= 465 cf, Atten= 0%, Lag= 0.0 min  
Primary = 0.18 cfs @ 12.04 hrs, Volume= 465 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.80' @ 12.04 hrs

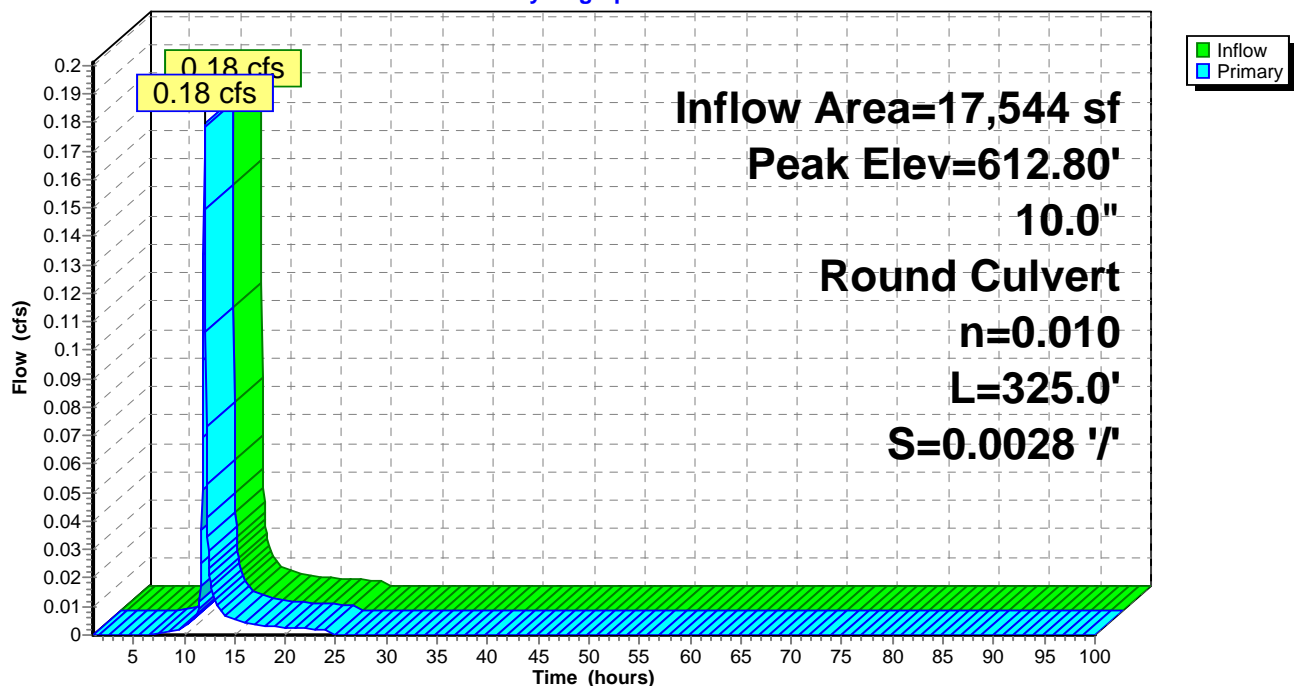
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.18 cfs @ 12.04 hrs HW=612.80' TW=590.40' (Dynamic Tailwater)  
1=Culvert (Barrel Controls 0.18 cfs @ 1.84 fps)

### Pond DI #911: DI #911

#### Hydrograph



**Genesee St Final**

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Type II 24-hr WQv Rainfall=0.85"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E1: EXISTING 1**Runoff Area=17,544 sf 97.93% Impervious Runoff Depth=0.65"  
Tc=12.0 min CN=98 Runoff=0.35 cfs 945 cf**Subcatchment E2: EXISTING 2**Runoff Area=18,344 sf 99.02% Impervious Runoff Depth=0.65"  
Tc=12.0 min CN=98 Runoff=0.37 cfs 988 cf**Subcatchment E4A: E4A**Runoff Area=17,702 sf 95.27% Impervious Runoff Depth=0.57"  
Tc=12.0 min CN=97 Runoff=0.32 cfs 835 cf**Subcatchment EM1: Area EM1**Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=0.65"  
Tc=15.0 min CN=98 Runoff=0.56 cfs 1,627 cf**Subcatchment EM2: Area EM2**Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=0.65"  
Tc=12.0 min CN=98 Runoff=0.27 cfs 724 cf**Pond 3P: 84" TRUNK SEWER**Peak Elev=590.55' Inflow=1.86 cfs 5,119 cf  
84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=1.86 cfs 5,120 cf**Pond DI #868: DI #868**Peak Elev=612.92' Inflow=0.37 cfs 988 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.37 cfs 988 cf**Pond DI #911: DI #911**Peak Elev=612.91' Inflow=0.35 cfs 945 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.35 cfs 945 cf**Total Runoff Area = 97,251 sf Runoff Volume = 5,119 cf Average Runoff Depth = 0.63"**  
**1.64% Pervious = 1,591 sf 98.36% Impervious = 95,660 sf**

**Summary for Subcatchment E1: EXISTING 1**

Runoff = 0.35 cfs @ 12.03 hrs, Volume= 945 cf, Depth= 0.65"

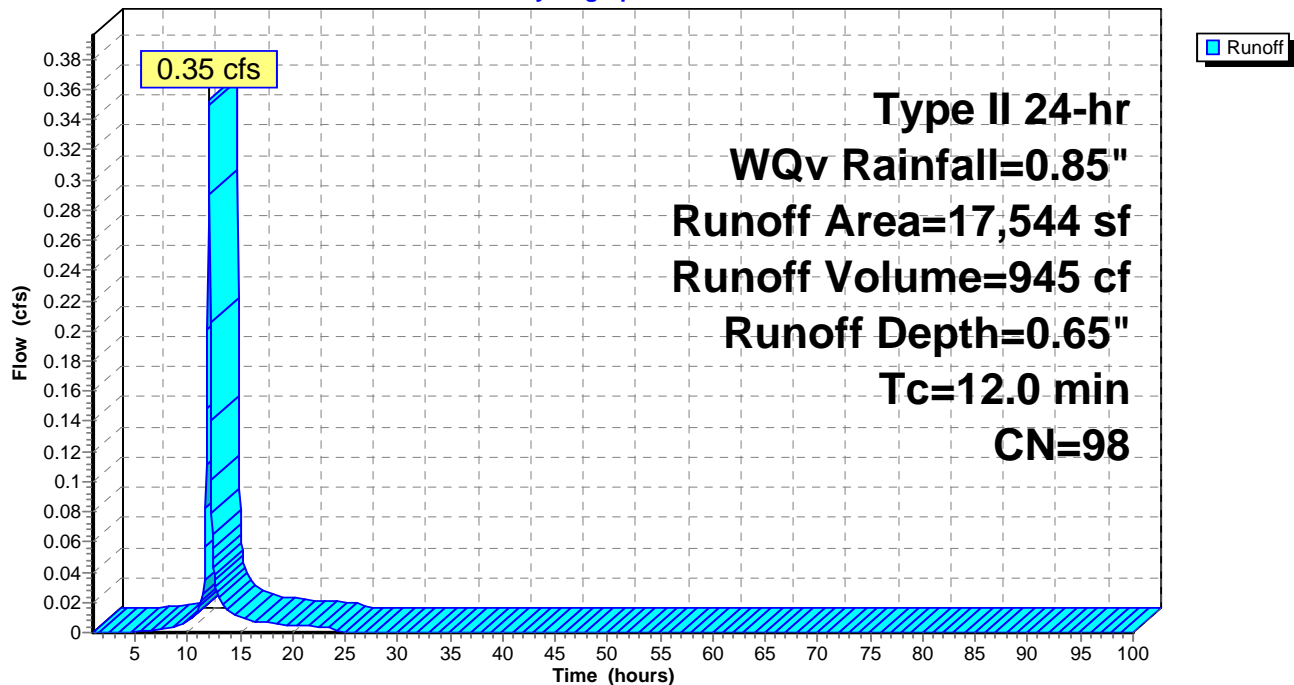
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
17,181	98	Paved parking, HSG D
363	80	>75% Grass cover, Good, HSG D
17,544	98	Weighted Average
363		2.07% Pervious Area
17,181		97.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E1: EXISTING 1**

Hydrograph



**Summary for Subcatchment E2: EXISTING 2**

Runoff = 0.37 cfs @ 12.03 hrs, Volume= 988 cf, Depth= 0.65"

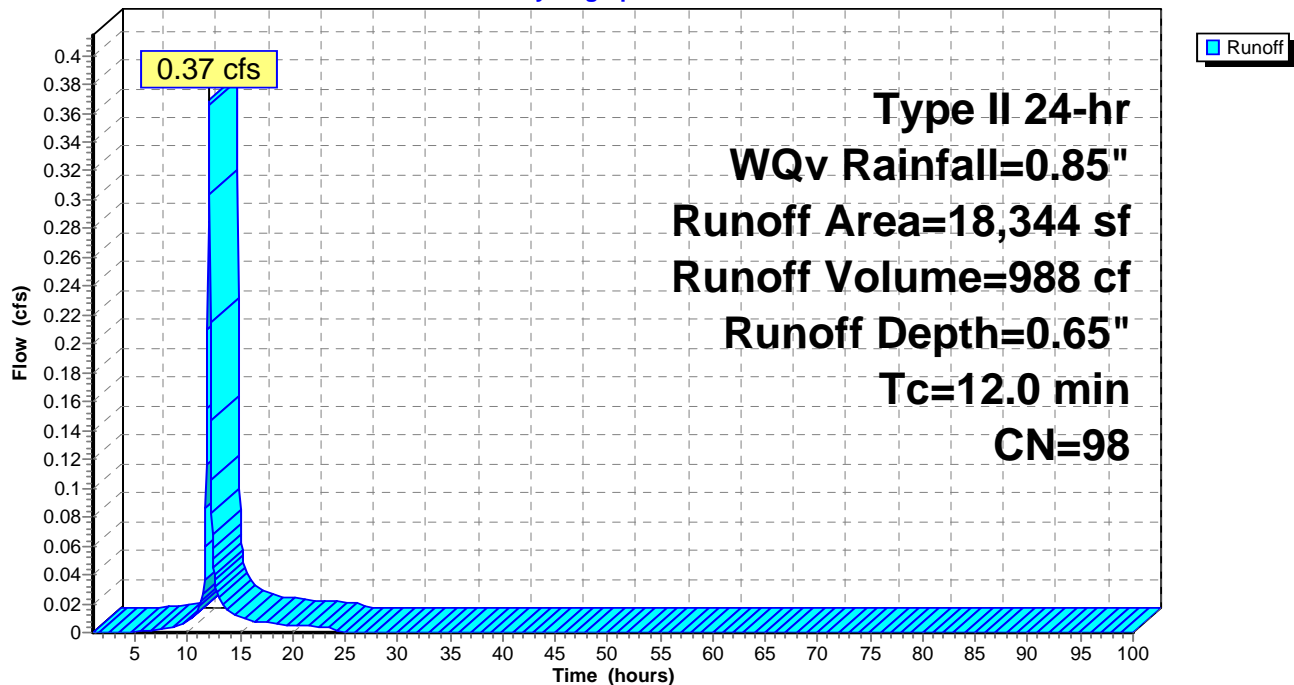
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
18,164	98	Paved parking, HSG D
180	80	>75% Grass cover, Good, HSG D
18,344	98	Weighted Average
180		0.98% Pervious Area
18,164		99.02% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E2: EXISTING 2**

Hydrograph





**Summary for Subcatchment E4A: E4A**

Runoff = 0.32 cfs @ 12.04 hrs, Volume= 835 cf, Depth= 0.57"

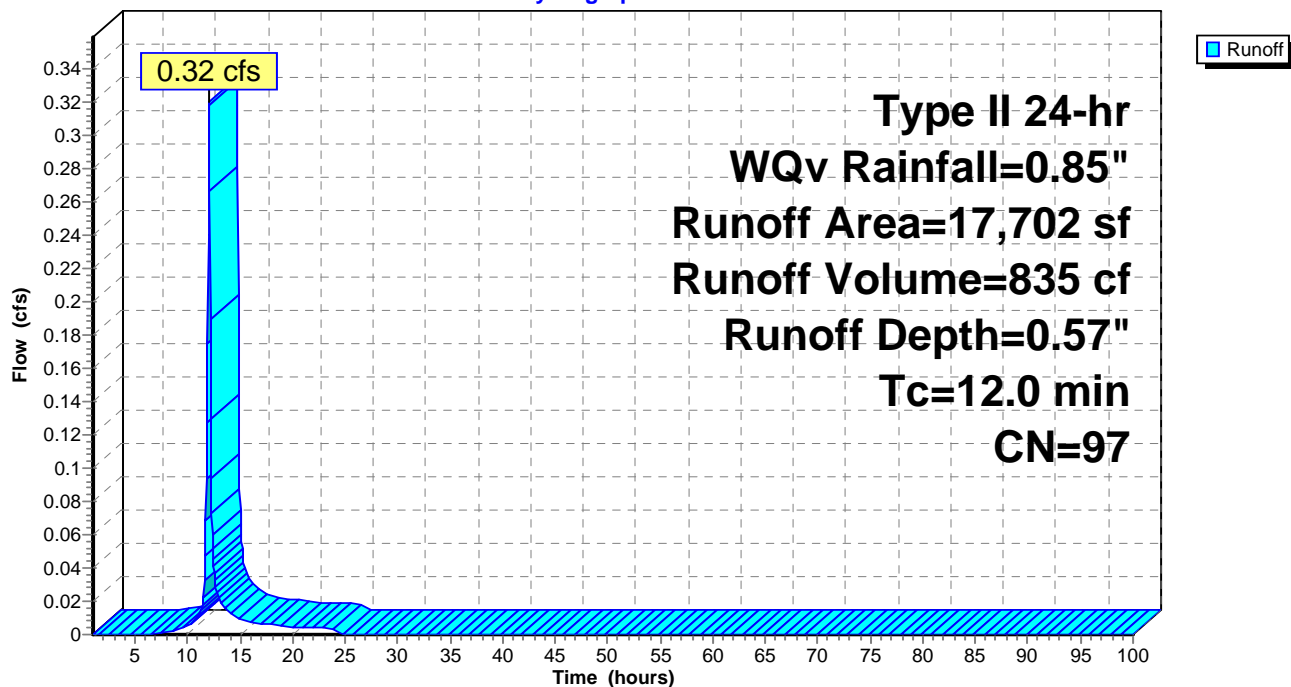
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
16,864	98	Paved parking, HSG D
838	80	>75% Grass cover, Good, HSG D
17,702	97	Weighted Average
838		4.73% Pervious Area
16,864		95.27% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E4A: E4A**

Hydrograph



**Summary for Subcatchment EM1: Area EM1**

Runoff = 0.56 cfs @ 12.06 hrs, Volume= 1,627 cf, Depth= 0.65"

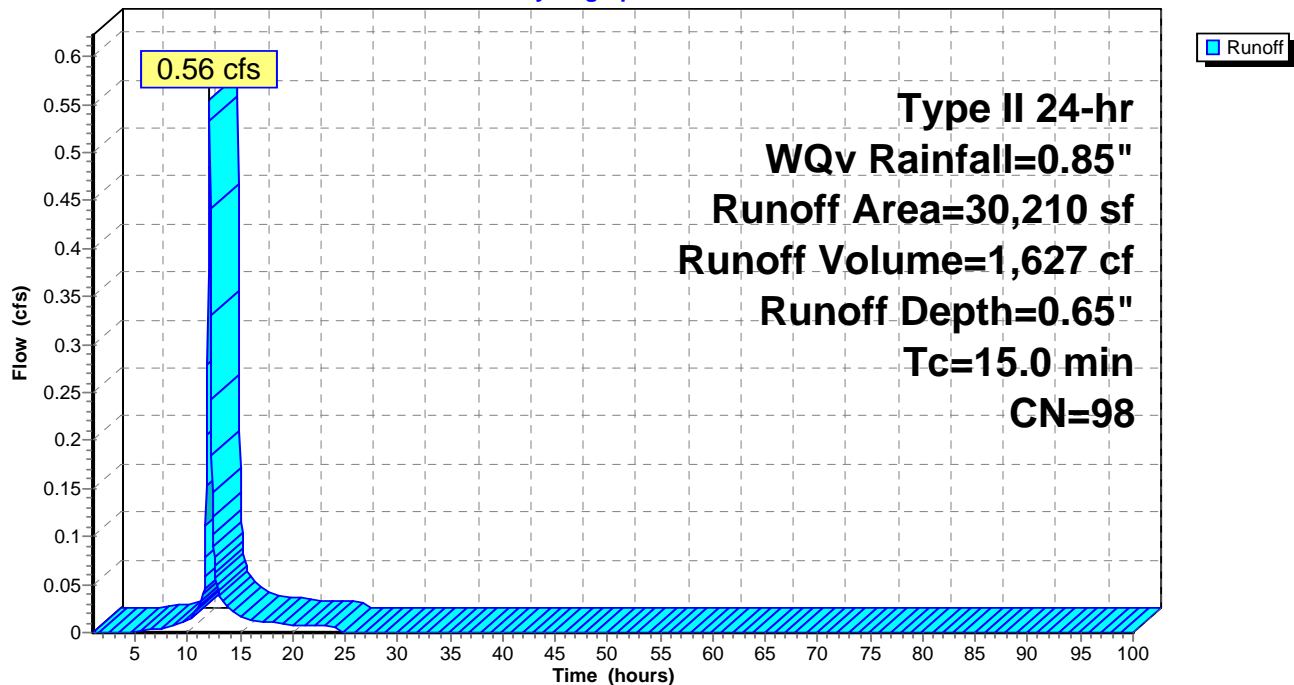
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
210	80	>75% Grass cover, Good, HSG D
30,000	98	Paved parking, HSG D
30,210	98	Weighted Average
210		0.70% Pervious Area
30,000		99.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					Direct Entry,

**Subcatchment EM1: Area EM1**

Hydrograph



**Summary for Subcatchment EM2: Area EM2**

Runoff = 0.27 cfs @ 12.03 hrs, Volume= 724 cf, Depth= 0.65"

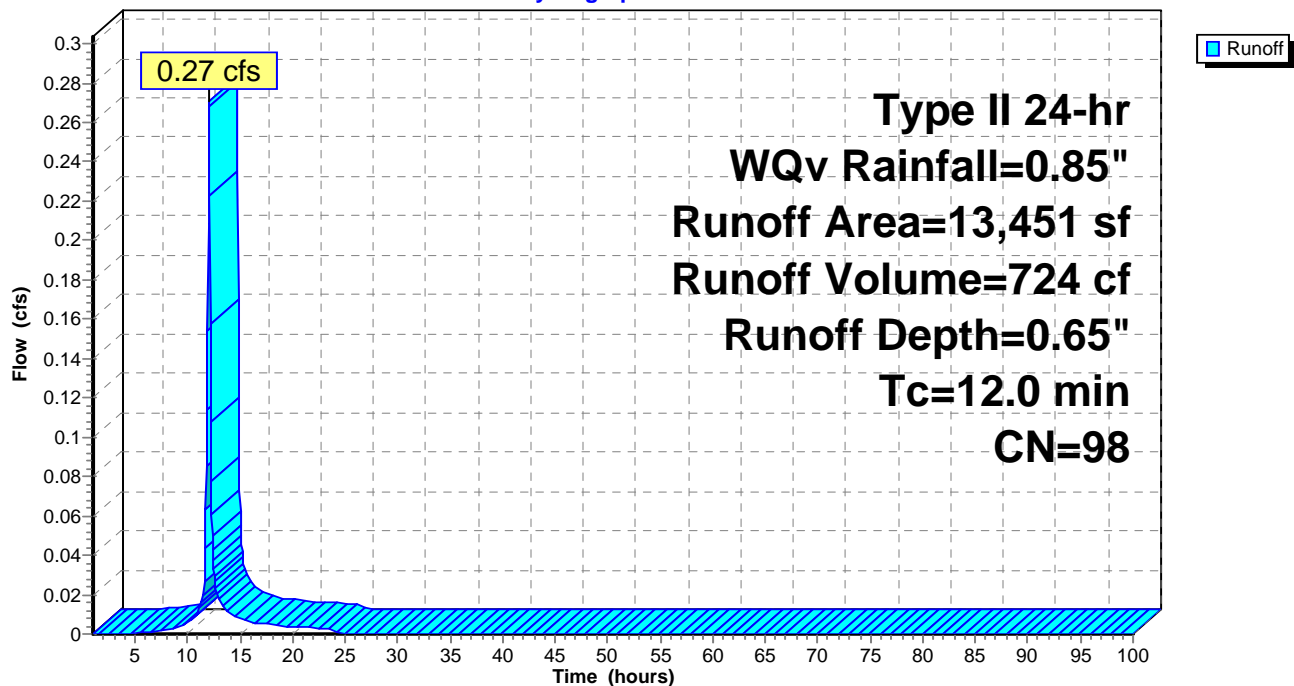
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
13,451	98	Paved parking, HSG D
13,451		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment EM2: Area EM2**

Hydrograph



**Summary for Pond 3P: 84" TRUNK SEWER**

Inflow Area = 97,251 sf, 98.36% Impervious, Inflow Depth = 0.63" for WQv event  
 Inflow = 1.86 cfs @ 12.04 hrs, Volume= 5,119 cf  
 Outflow = 1.86 cfs @ 12.04 hrs, Volume= 5,120 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.86 cfs @ 12.04 hrs, Volume= 5,120 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 590.55' @ 12.04 hrs

Flood Elev= 647.22'

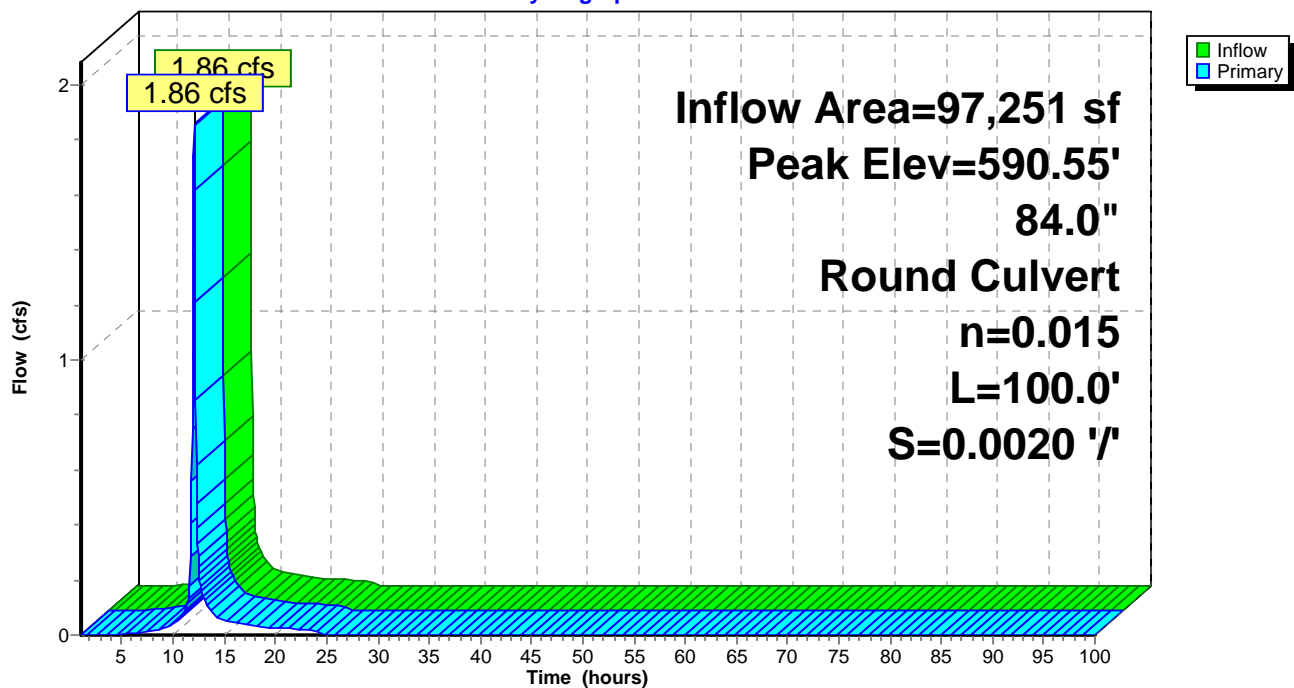
Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	<b>84.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 38.48 sf

**Primary OutFlow** Max=1.83 cfs @ 12.04 hrs HW=590.55' (Free Discharge)

1=Culvert (Barrel Controls 1.83 cfs @ 2.01 fps)

**Pond 3P: 84" TRUNK SEWER**

Hydrograph



**Summary for Pond DI #868: DI #868**

Inflow Area = 18,344 sf, 99.02% Impervious, Inflow Depth = 0.65" for WQv event  
 Inflow = 0.37 cfs @ 12.03 hrs, Volume= 988 cf  
 Outflow = 0.37 cfs @ 12.03 hrs, Volume= 988 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.37 cfs @ 12.03 hrs, Volume= 988 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.92' @ 12.03 hrs

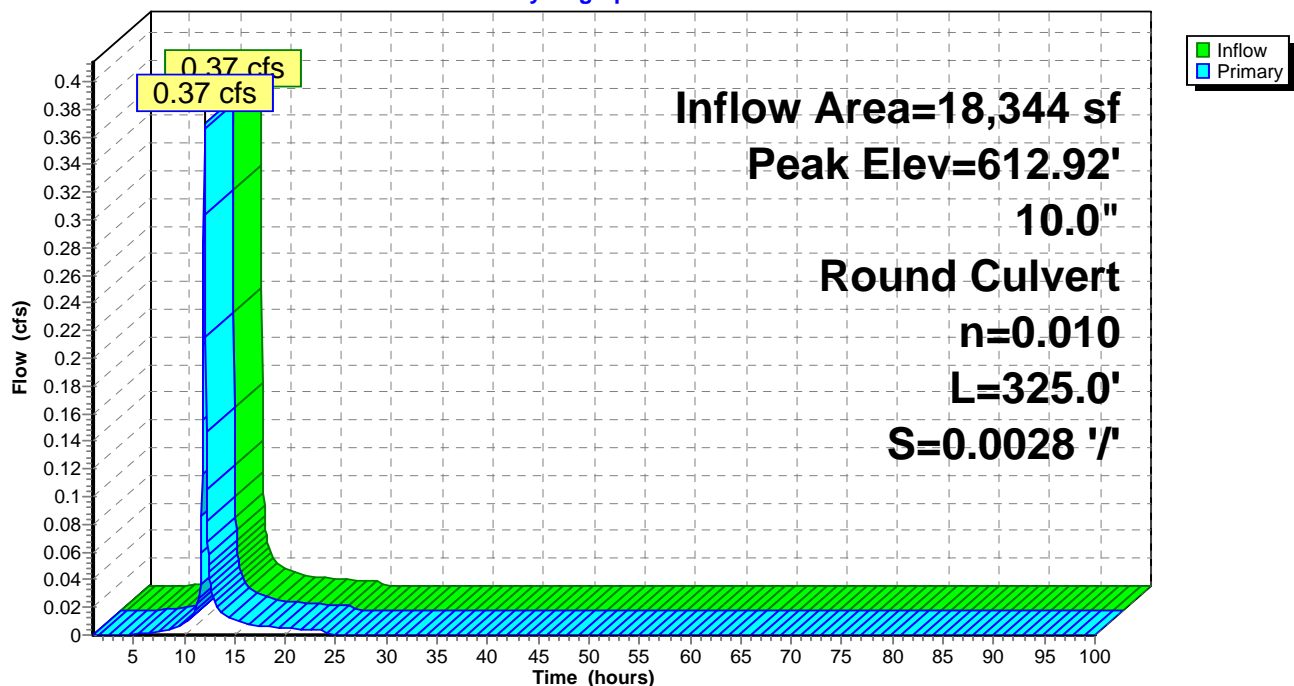
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.36 cfs @ 12.03 hrs HW=612.91' TW=590.54' (Dynamic Tailwater)  
 1=Culvert (Barrel Controls 0.36 cfs @ 2.25 fps)

**Pond DI #868: DI #868**

Hydrograph



**Summary for Pond DI #911: DI #911**

Inflow Area = 17,544 sf, 97.93% Impervious, Inflow Depth = 0.65" for WQv event  
 Inflow = 0.35 cfs @ 12.03 hrs, Volume= 945 cf  
 Outflow = 0.35 cfs @ 12.03 hrs, Volume= 945 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.35 cfs @ 12.03 hrs, Volume= 945 cf

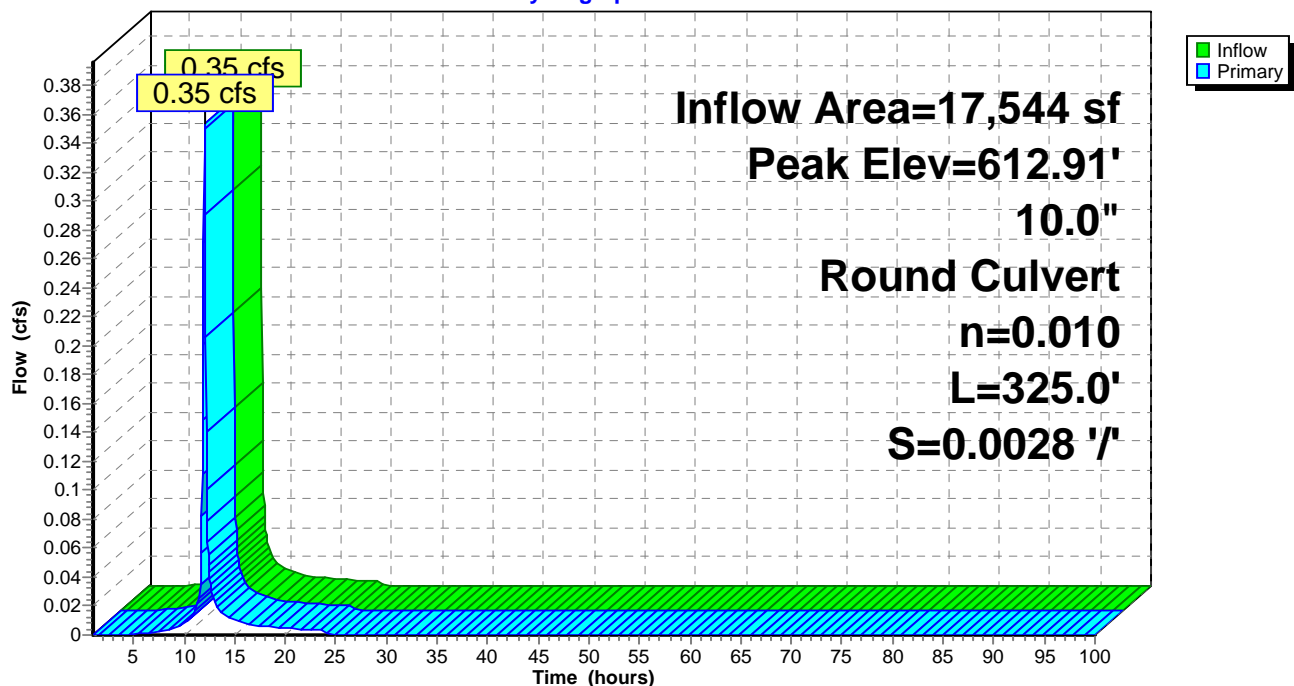
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

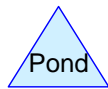
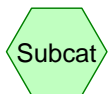
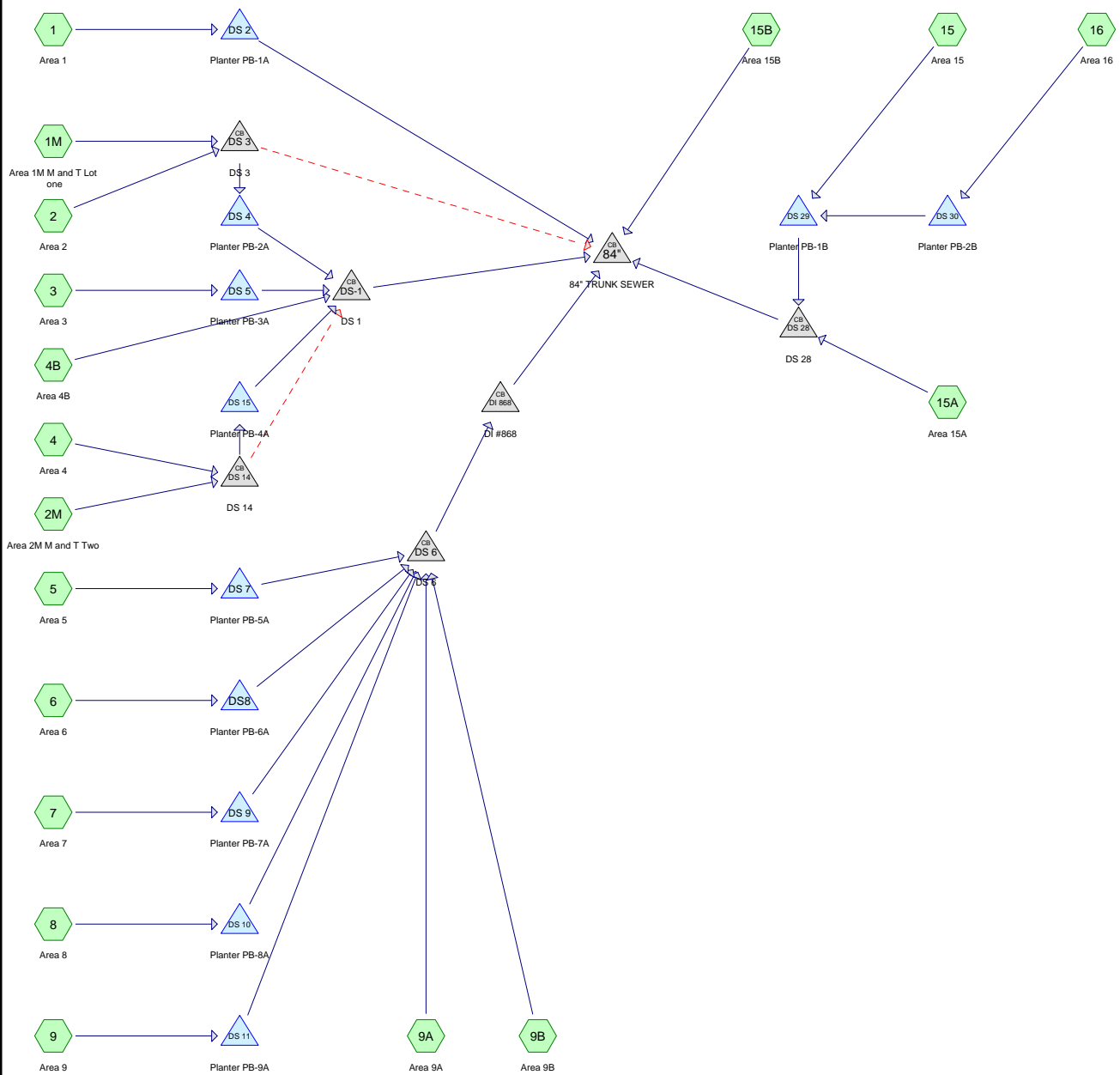
Peak Elev= 612.91' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.35 cfs @ 12.03 hrs HW=612.90' TW=590.54' (Dynamic Tailwater)  
 ↳ **1=Culvert** (Barrel Controls 0.35 cfs @ 2.22 fps)

**Pond DI #911: DI #911****Hydrograph**



**Routing Diagram for Genesee St Final**  
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## Genesee St Final

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### Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
1,812	80	>75% Grass cover, Good, HSG D (1, 1M, 2, 3, 4, 5, 6, 7, 8, 9, 15, 16)
111,079	98	Paved parking, HSG D (1, 1M, 2, 2M, 3, 4, 4B, 5, 6, 7, 8, 9, 9A, 9B, 15, 15A, 15B, 16)
<b>112,891</b>	<b>98</b>	<b>TOTAL AREA</b>



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**Soil Listing (selected nodes)**

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
112,891	HSG D	1, 1M, 2, 2M, 3, 4, 4B, 5, 6, 7, 8, 9, 9A, 9B, 15, 15A, 15B, 16
0	Other	
<b>112,891</b>		<b>TOTAL AREA</b>

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**Ground Covers (selected nodes)**

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
0	0	0	1,812	0	1,812	>75% Grass cover, Good	
0	0	0	111,079	0	111,079	Paved parking	
<b>0</b>	<b>0</b>	<b>0</b>	<b>112,891</b>	<b>0</b>	<b>112,891</b>	<b>TOTAL AREA</b>	

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**Pipe Listing (selected nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	84"	590.00	589.80	100.0	0.0020	0.015	84.0	0.0	0.0
2	DI 868	612.54	611.63	325.0	0.0028	0.010	10.0	0.0	0.0
3	DS 10	611.95	611.88	6.0	0.0117	0.013	6.0	0.0	0.0
4	DS 10	610.76	610.76	28.0	0.0000	0.010	6.0	0.0	0.0
5	DS 11	611.91	611.84	6.0	0.0117	0.013	6.0	0.0	0.0
6	DS 11	610.62	610.62	27.0	0.0000	0.010	6.0	0.0	0.0
7	DS 14	612.80	612.75	4.0	0.0125	0.010	6.0	0.0	0.0
8	DS 14	612.90	612.83	6.0	0.0117	0.012	6.0	0.0	0.0
9	DS 15	611.93	611.86	6.0	0.0117	0.013	6.0	0.0	0.0
10	DS 15	610.50	610.50	61.0	0.0000	0.010	6.0	0.0	0.0
11	DS 2	612.64	612.59	4.0	0.0125	0.013	6.0	0.0	0.0
12	DS 2	611.12	611.12	39.0	0.0000	0.013	6.0	0.0	0.0
13	DS 28	608.71	608.60	77.0	0.0014	0.012	12.0	0.0	0.0
14	DS 29	610.41	610.35	5.0	0.0120	0.013	6.0	0.0	0.0
15	DS 29	609.75	609.75	50.0	0.0000	0.013	6.0	0.0	0.0
16	DS 3	612.60	612.55	4.0	0.0125	0.010	6.0	0.0	0.0
17	DS 3	613.60	613.55	6.0	0.0083	0.012	6.0	0.0	0.0
18	DS 30	611.87	611.20	59.0	0.0114	0.010	6.0	0.0	0.0
19	DS 30	609.43	609.43	7.0	0.0000	0.010	6.0	0.0	0.0
20	DS 4	612.48	612.41	6.0	0.0117	0.013	6.0	0.0	0.0
21	DS 4	610.89	610.89	60.0	0.0000	0.013	6.0	0.0	0.0
22	DS 5	612.37	612.30	5.5	0.0127	0.010	6.0	0.0	0.0
23	DS 5	610.61	610.61	28.0	0.0000	0.010	6.0	0.0	0.0
24	DS 6	612.27	611.42	303.0	0.0028	0.010	10.0	0.0	0.0
25	DS 7	613.04	612.97	6.0	0.0117	0.010	6.0	0.0	0.0
26	DS 7	611.29	611.29	15.0	0.0000	0.013	6.0	0.0	0.0
27	DS 9	612.30	612.23	6.0	0.0117	0.010	6.0	0.0	0.0
28	DS 9	610.99	610.99	28.0	0.0000	0.013	6.0	0.0	0.0
29	DS-1	612.54	611.63	325.0	0.0028	0.010	10.0	0.0	0.0
30	DS8	613.04	612.97	6.0	0.0117	0.013	6.0	0.0	0.0
31	DS8	611.13	611.13	14.0	0.0000	0.013	6.0	0.0	0.0

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*Type II 24-hr 2 YR Rainfall=2.25"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment1: Area 1</b>	Runoff Area=5,276 sf 95.77% Impervious Runoff Depth=1.92" Tc=12.0 min CN=97 Runoff=0.30 cfs 843 cf
<b>Subcatchment1M: Area 1M M and T Lot</b>	Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=2.02" Tc=15.0 min CN=98 Runoff=1.63 cfs 5,091 cf
<b>Subcatchment2: Area 2</b>	Runoff Area=3,939 sf 92.08% Impervious Runoff Depth=1.92" Tc=12.0 min CN=97 Runoff=0.23 cfs 629 cf
<b>Subcatchment2M: Area 2M M and T Two</b>	Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.79 cfs 2,267 cf
<b>Subcatchment3: Area 3</b>	Runoff Area=2,103 sf 92.44% Impervious Runoff Depth=1.92" Tc=12.0 min CN=97 Runoff=0.12 cfs 336 cf
<b>Subcatchment4: Area 4</b>	Runoff Area=6,163 sf 94.95% Impervious Runoff Depth=1.92" Tc=12.0 min CN=97 Runoff=0.35 cfs 985 cf
<b>Subcatchment4B: Area 4B</b>	Runoff Area=2,141 sf 100.00% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.13 cfs 361 cf
<b>Subcatchment5: Area 5</b>	Runoff Area=3,711 sf 98.14% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.22 cfs 625 cf
<b>Subcatchment6: Area 6</b>	Runoff Area=1,765 sf 96.09% Impervious Runoff Depth=1.92" Tc=12.0 min CN=97 Runoff=0.10 cfs 282 cf
<b>Subcatchment7: Area 7</b>	Runoff Area=3,275 sf 96.52% Impervious Runoff Depth=1.92" Tc=12.0 min CN=97 Runoff=0.19 cfs 523 cf
<b>Subcatchment8: Area 8</b>	Runoff Area=2,841 sf 96.16% Impervious Runoff Depth=1.92" Tc=12.0 min CN=97 Runoff=0.16 cfs 454 cf
<b>Subcatchment9: Area 9</b>	Runoff Area=2,159 sf 94.58% Impervious Runoff Depth=1.92" Tc=12.0 min CN=97 Runoff=0.12 cfs 345 cf
<b>Subcatchment9A: Area 9A</b>	Runoff Area=4,063 sf 100.00% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.24 cfs 685 cf
<b>Subcatchment9B: Area 9B</b>	Runoff Area=5,512 sf 100.00% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.33 cfs 929 cf
<b>Subcatchment15: Area 15</b>	Runoff Area=3,027 sf 97.49% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.18 cfs 510 cf
<b>Subcatchment15A: Area 15A</b>	Runoff Area=3,750 sf 100.00% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.22 cfs 632 cf

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*Type II 24-hr 2 YR Rainfall=2.25"*

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**Subcatchment 15B: Area 15B**Runoff Area=16,790 sf 100.00% Impervious Runoff Depth=2.02"  
Tc=12.0 min CN=98 Runoff=0.99 cfs 2,830 cf**Subcatchment 16: Area 16**Runoff Area=2,715 sf 98.42% Impervious Runoff Depth=2.02"  
Tc=12.0 min CN=98 Runoff=0.16 cfs 458 cf**Pond 84": 84" TRUNK SEWER**Peak Elev=590.84' Inflow=4.51 cfs 100,453 cf  
84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=4.51 cfs 100,454 cf**Pond DI 868: DI #868**Peak Elev=613.02' Inflow=0.57 cfs 5,761 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.57 cfs 5,761 cf**Pond DS 10: Planter PB-8A**Peak Elev=612.69' Storage=353 cf Inflow=0.16 cfs 454 cf  
Outflow=0.01 cfs 129 cf**Pond DS 11: Planter PB-9A**Peak Elev=612.33' Storage=345 cf Inflow=0.12 cfs 345 cf  
Outflow=0.00 cfs 0 cf**Pond DS 14: DS 14**Peak Elev=613.50' Inflow=1.15 cfs 3,252 cf  
Primary=0.61 cfs 2,528 cf Secondary=0.54 cfs 723 cf Outflow=1.15 cfs 3,252 cf**Pond DS 15: Planter PB-4A**Peak Elev=613.16' Storage=1,333 cf Inflow=0.61 cfs 2,528 cf  
Outflow=0.27 cfs 1,339 cf**Pond DS 2: Planter PB-1A**Peak Elev=615.50' Storage=609 cf Inflow=0.30 cfs 843 cf  
Outflow=0.02 cfs 609 cf**Pond DS 28: DS 28**Peak Elev=609.26' Inflow=0.61 cfs 1,466 cf  
12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/' Outflow=0.61 cfs 1,468 cf**Pond DS 29: Planter PB-1B**Peak Elev=614.06' Storage=221 cf Inflow=0.36 cfs 910 cf  
Outflow=0.39 cfs 834 cf**Pond DS 3: DS 3**Peak Elev=615.76' Inflow=1.85 cfs 5,721 cf  
Primary=0.56 cfs 1,905 cf Secondary=1.31 cfs 3,815 cf Outflow=1.85 cfs 5,721 cf**Pond DS 30: Planter PB-2B**Peak Elev=614.12' Storage=109 cf Inflow=0.16 cfs 458 cf  
Outflow=0.19 cfs 400 cf**Pond DS 4: Planter PB-2A**Peak Elev=615.48' Storage=1,715 cf Inflow=0.56 cfs 1,905 cf  
Outflow=0.93 cfs 926 cf**Pond DS 5: Planter PB-3A**Peak Elev=613.76' Storage=279 cf Inflow=0.12 cfs 336 cf  
Outflow=0.00 cfs 128 cf**Pond DS 6: DS 6**Peak Elev=613.18' Inflow=0.57 cfs 5,761 cf  
10.0" Round Culvert n=0.010 L=303.0' S=0.0028 '/' Outflow=0.57 cfs 5,761 cf**Pond DS 7: Planter PB-5A**Peak Elev=615.62' Storage=383 cf Inflow=0.22 cfs 625 cf  
Outflow=0.08 cfs 415 cf**Pond DS 9: Planter PB-7A**Peak Elev=612.85' Storage=369 cf Inflow=0.19 cfs 523 cf  
Outflow=0.01 cfs 208 cf

**Genesee St Final***Type II 24-hr 2 YR Rainfall=2.25"*

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**Pond DS-1: DS 1**

Peak Elev=613.38' Inflow=1.38 cfs 85,970 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=1.38 cfs 85,970 cf

**Pond DS8: Planter PB-6A**

Peak Elev=613.07' Storage=230 cf Inflow=0.10 cfs 282 cf  
Outflow=0.00 cfs 55 cf

**Total Runoff Area = 112,891 sf Runoff Volume = 18,784 cf Average Runoff Depth = 2.00"**  
**1.61% Pervious = 1,812 sf 98.39% Impervious = 111,079 sf**

**Summary for Subcatchment 1: Area 1**

Runoff = 0.30 cfs @ 12.03 hrs, Volume= 843 cf, Depth= 1.92"

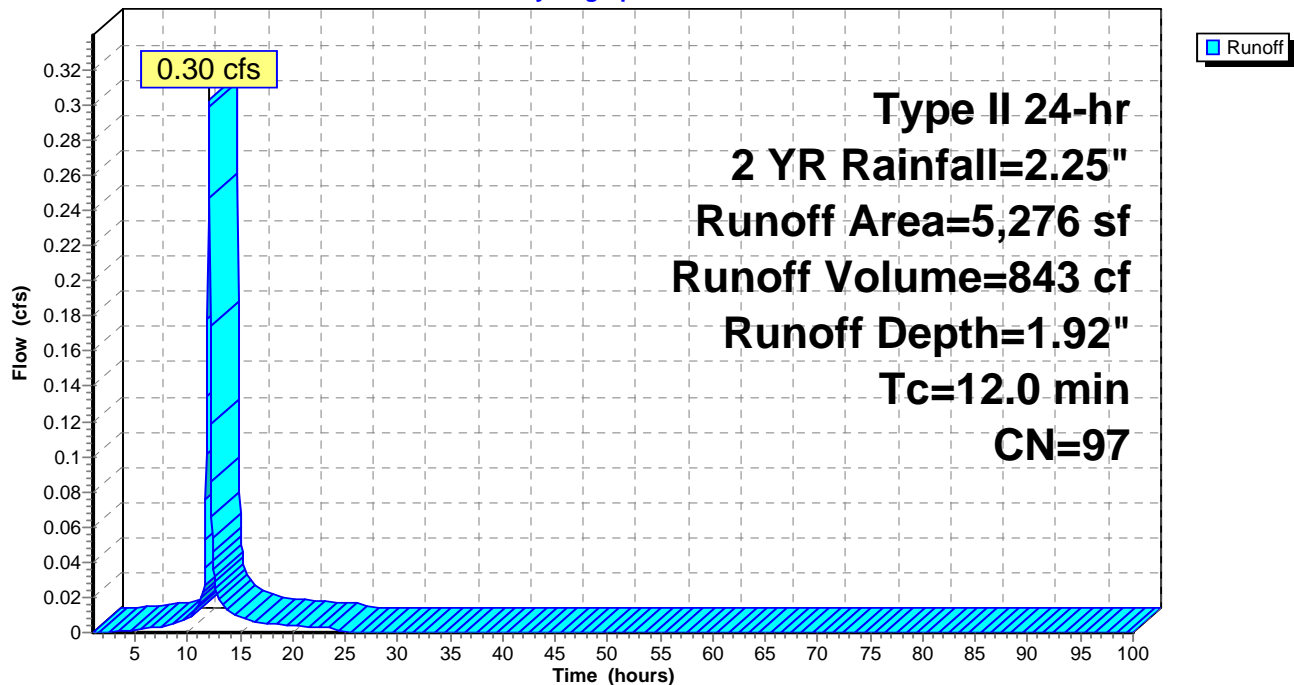
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
223	80	>75% Grass cover, Good, HSG D
5,053	98	Paved parking, HSG D
5,276	97	Weighted Average
223		4.23% Pervious Area
5,053		95.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 1: Area 1**

Hydrograph



**Summary for Subcatchment 1M: Area 1M M and T Lot one**

Runoff = 1.63 cfs @ 12.06 hrs, Volume= 5,091 cf, Depth= 2.02"

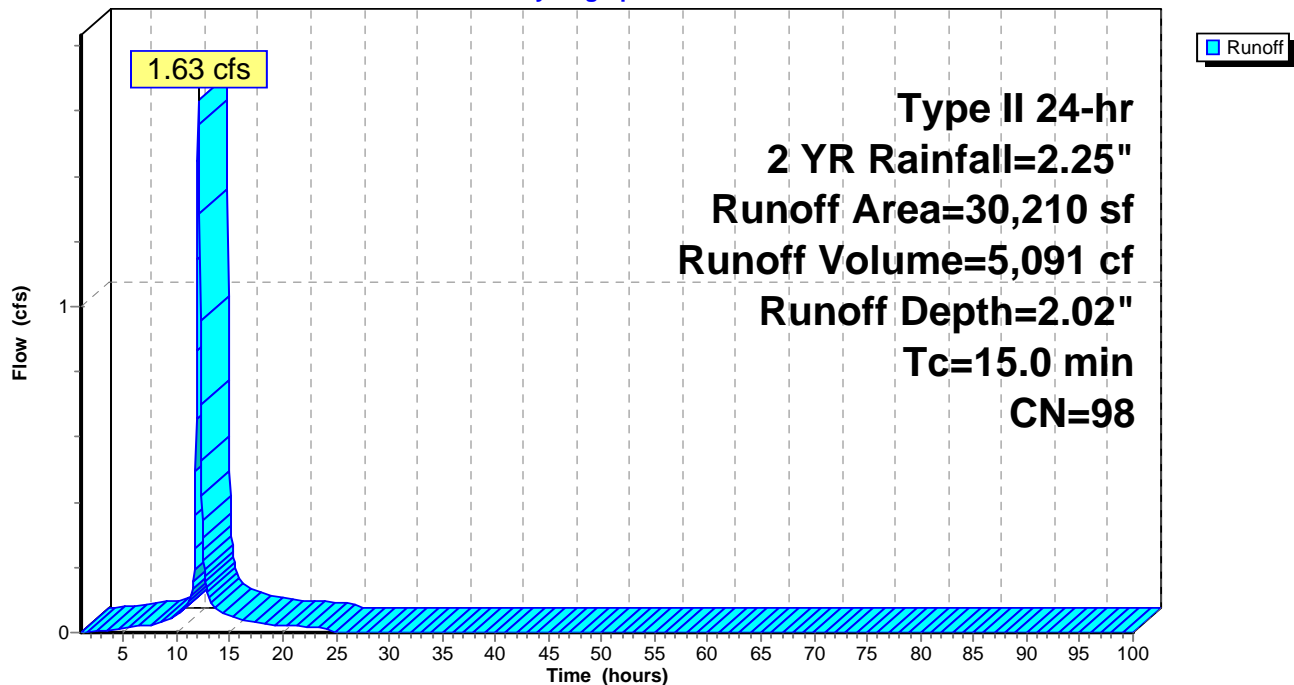
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
210	80	>75% Grass cover, Good, HSG D
30,000	98	Paved parking, HSG D
30,210	98	Weighted Average
210		0.70% Pervious Area
30,000		99.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					Direct Entry,

**Subcatchment 1M: Area 1M M and T Lot one**

Hydrograph





**Summary for Subcatchment 2: Area 2**

Runoff = 0.23 cfs @ 12.03 hrs, Volume= 629 cf, Depth= 1.92"

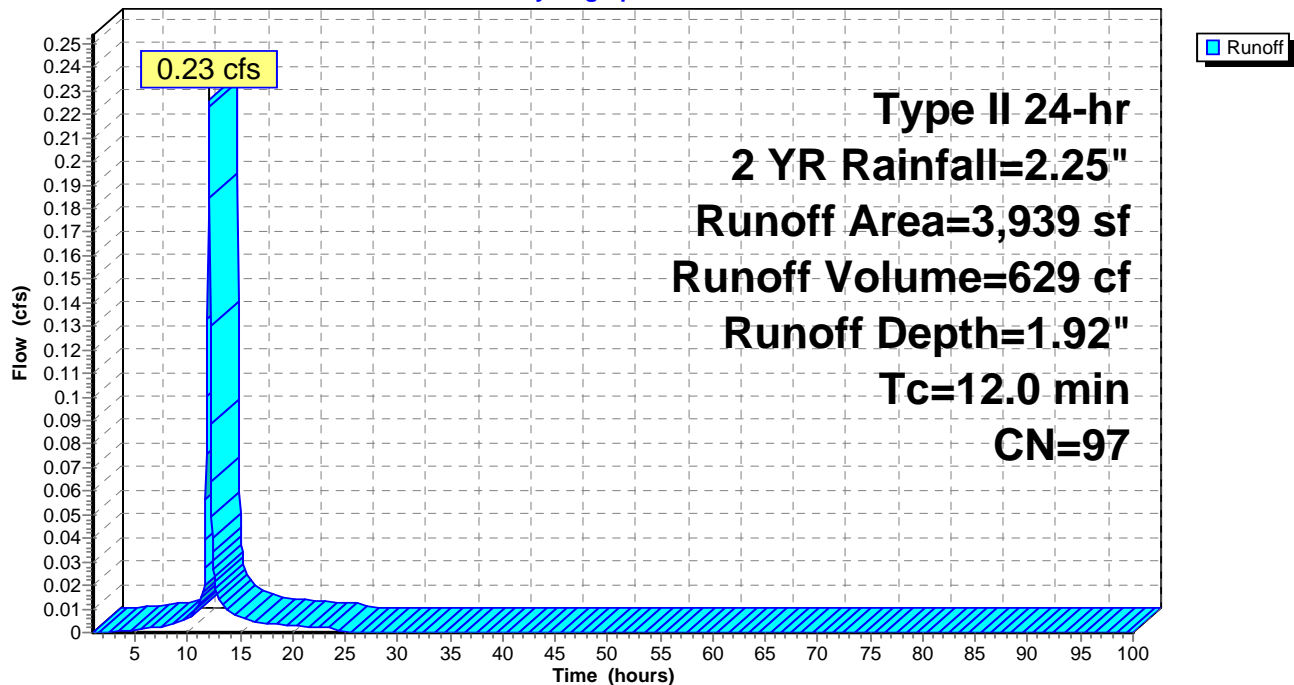
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
312	80	>75% Grass cover, Good, HSG D
3,627	98	Paved parking, HSG D
3,939	97	Weighted Average
312		7.92% Pervious Area
3,627		92.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 2: Area 2**

Hydrograph



**Summary for Subcatchment 2M: Area 2M M and T Two**

Runoff = 0.79 cfs @ 12.03 hrs, Volume= 2,267 cf, Depth= 2.02"

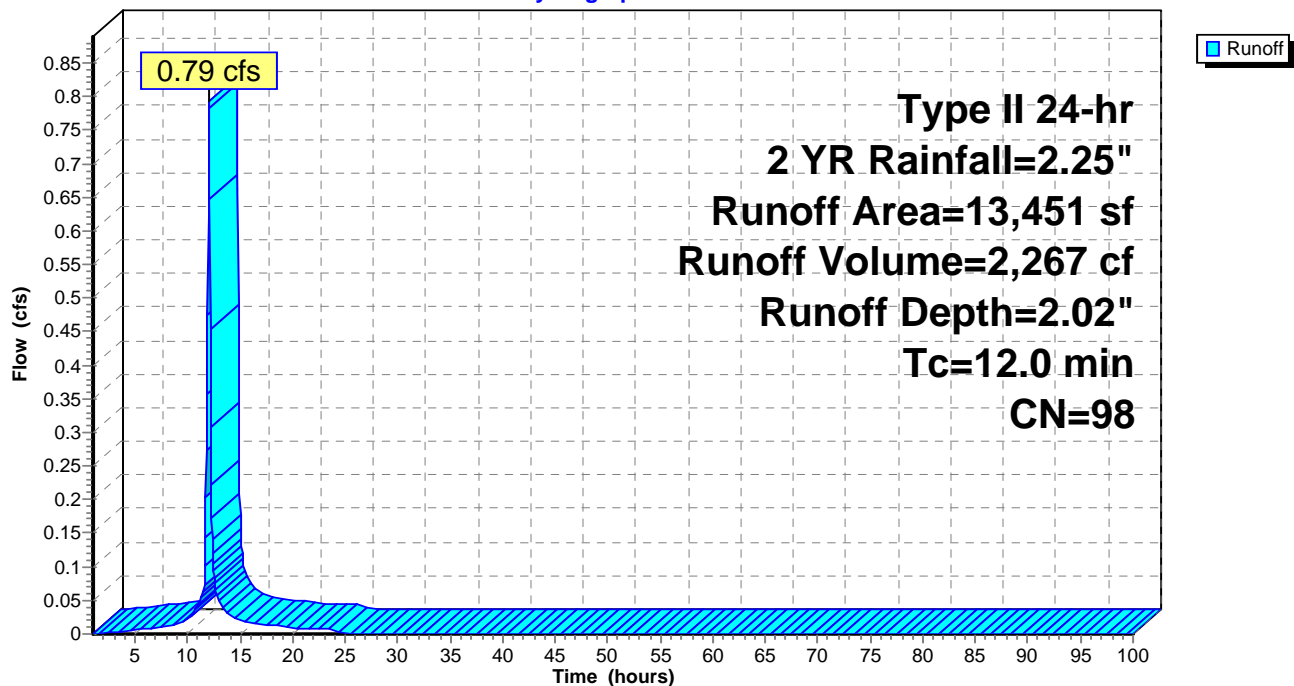
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
13,451	98	Paved parking, HSG D
13,451		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 2M: Area 2M M and T Two**

Hydrograph



**Summary for Subcatchment 3: Area 3**

Runoff = 0.12 cfs @ 12.03 hrs, Volume= 336 cf, Depth= 1.92"

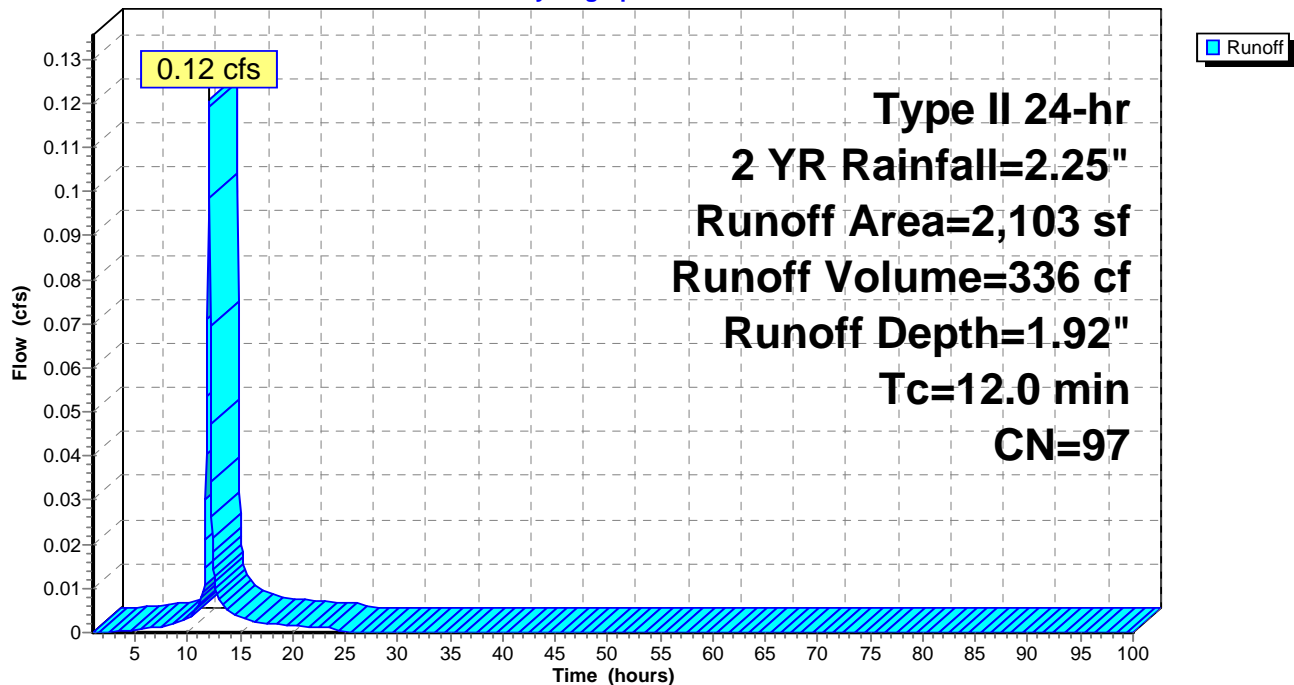
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
159	80	>75% Grass cover, Good, HSG D
1,944	98	Paved parking, HSG D
2,103	97	Weighted Average
159		7.56% Pervious Area
1,944		92.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 3: Area 3**

Hydrograph



**Summary for Subcatchment 4: Area 4**

Runoff = 0.35 cfs @ 12.03 hrs, Volume= 985 cf, Depth= 1.92"

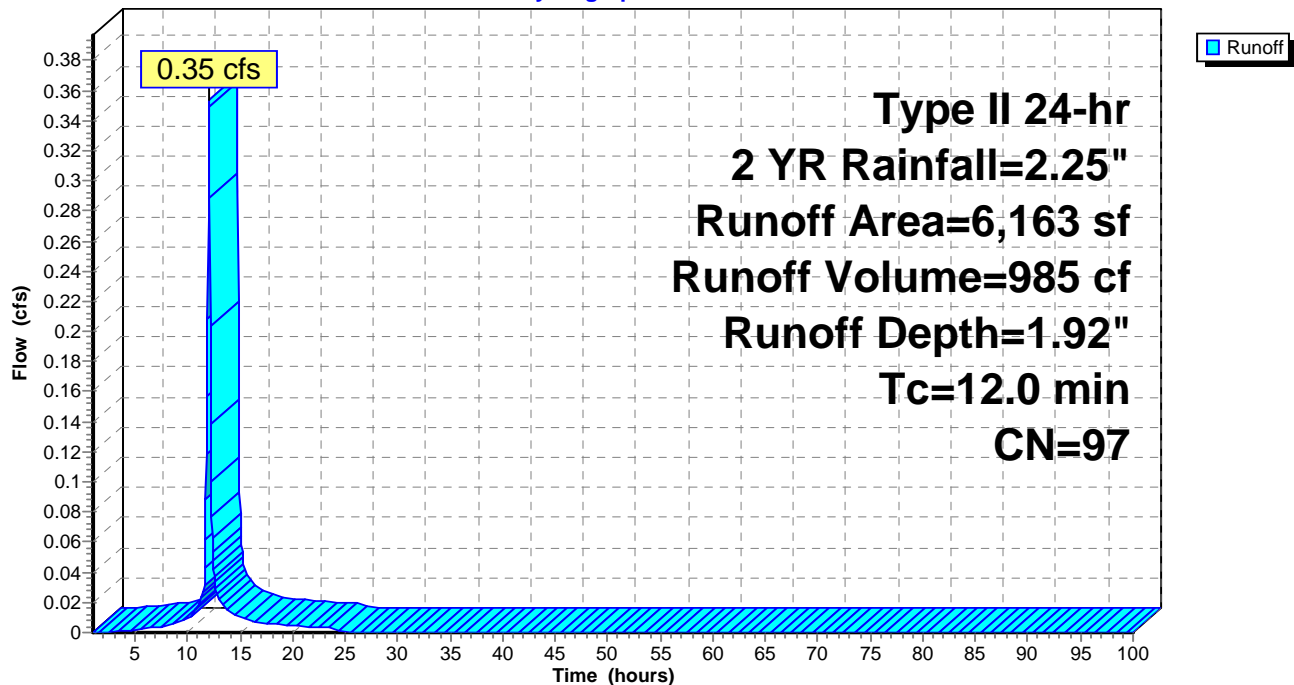
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
311	80	>75% Grass cover, Good, HSG D
5,852	98	Paved parking, HSG D
6,163	97	Weighted Average
311		5.05% Pervious Area
5,852		94.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 4: Area 4**

Hydrograph



**Summary for Subcatchment 4B: Area 4B**

Runoff = 0.13 cfs @ 12.03 hrs, Volume= 361 cf, Depth= 2.02"

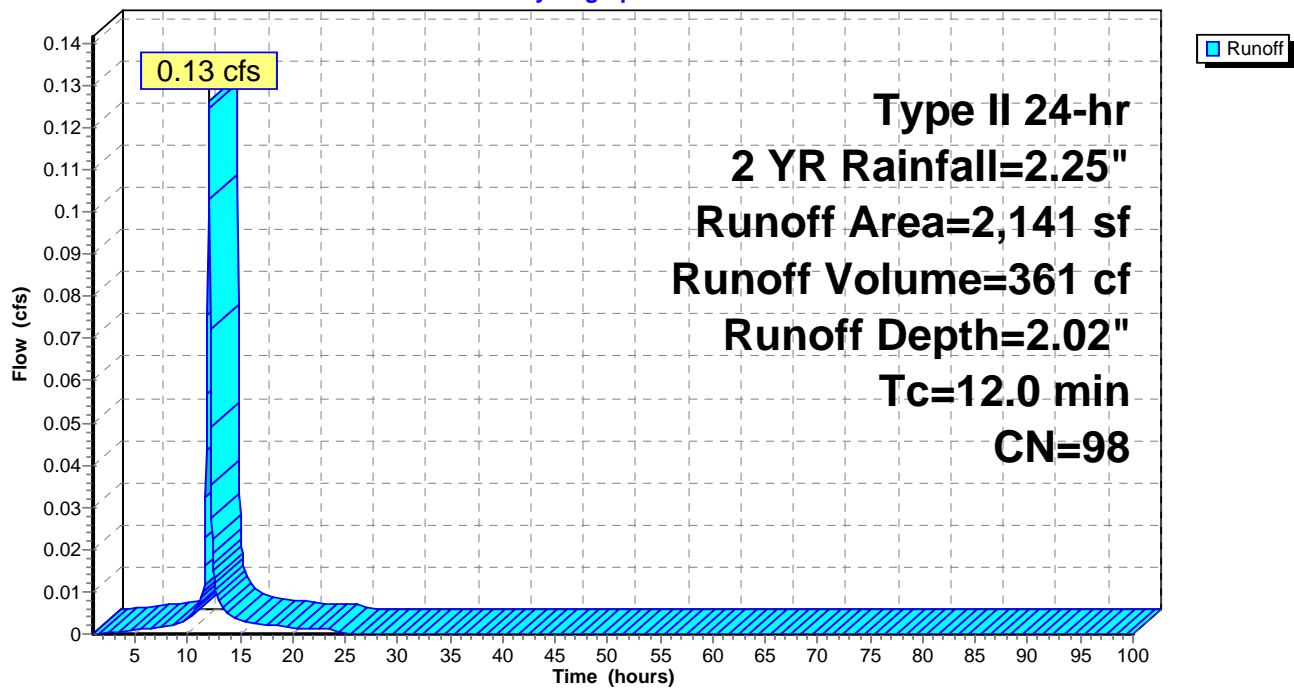
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
2,141	98	Paved parking, HSG D
2,141		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 4B: Area 4B**

Hydrograph



**Summary for Subcatchment 5: Area 5**

Runoff = 0.22 cfs @ 12.03 hrs, Volume= 625 cf, Depth= 2.02"

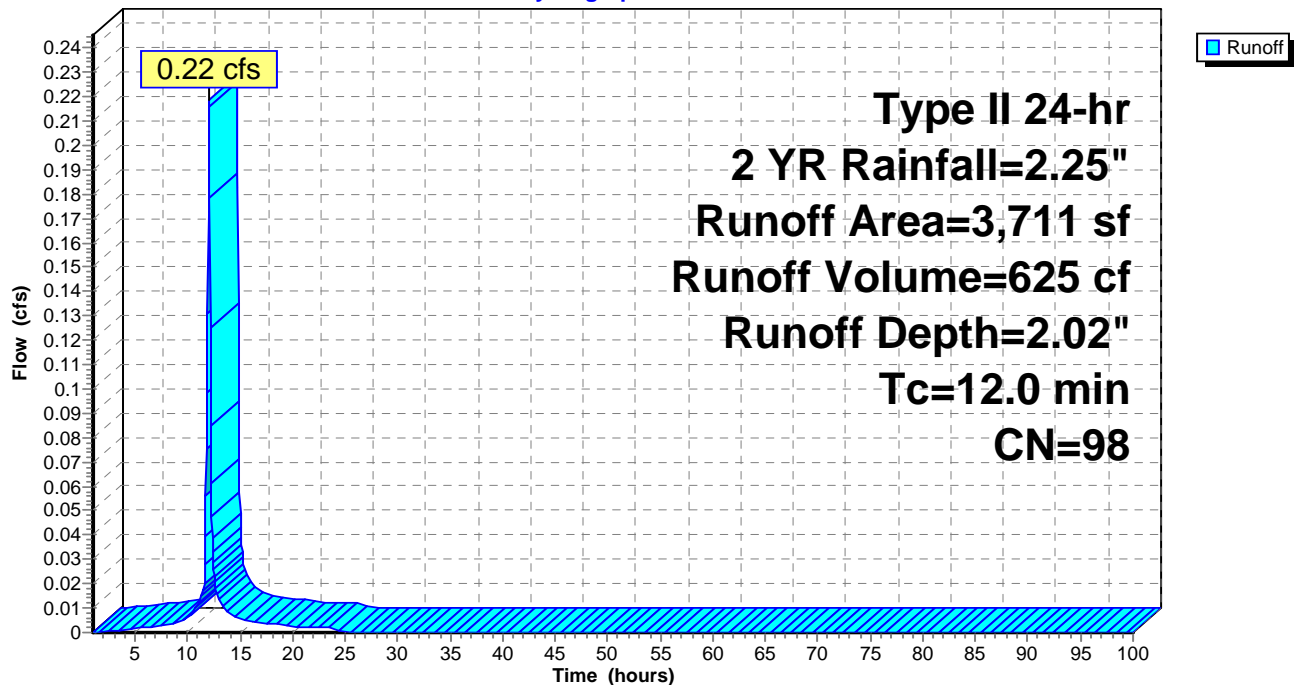
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
69	80	>75% Grass cover, Good, HSG D
3,642	98	Paved parking, HSG D
3,711	98	Weighted Average
69		1.86% Pervious Area
3,642		98.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 5: Area 5**

Hydrograph



**Summary for Subcatchment 6: Area 6**

Runoff = 0.10 cfs @ 12.03 hrs, Volume= 282 cf, Depth= 1.92"

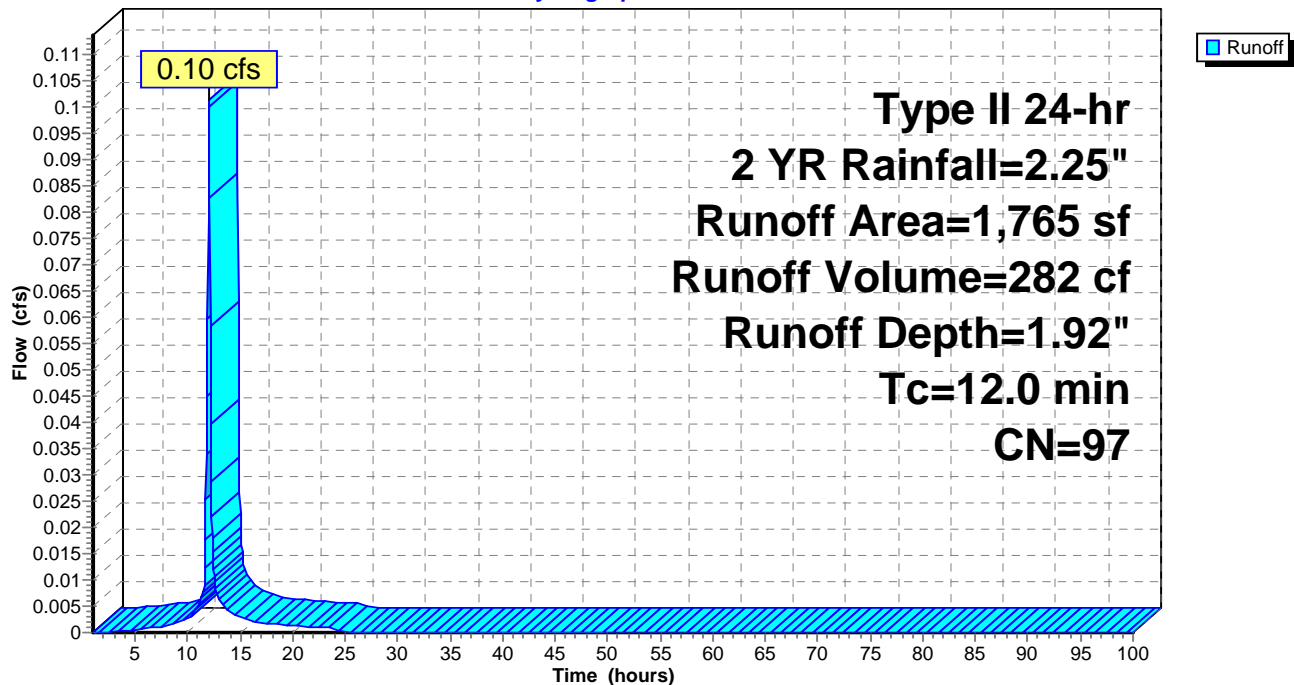
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
69	80	>75% Grass cover, Good, HSG D
1,696	98	Paved parking, HSG D
1,765	97	Weighted Average
69		3.91% Pervious Area
1,696		96.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 6: Area 6**

Hydrograph



**Summary for Subcatchment 7: Area 7**

Runoff = 0.19 cfs @ 12.03 hrs, Volume= 523 cf, Depth= 1.92"

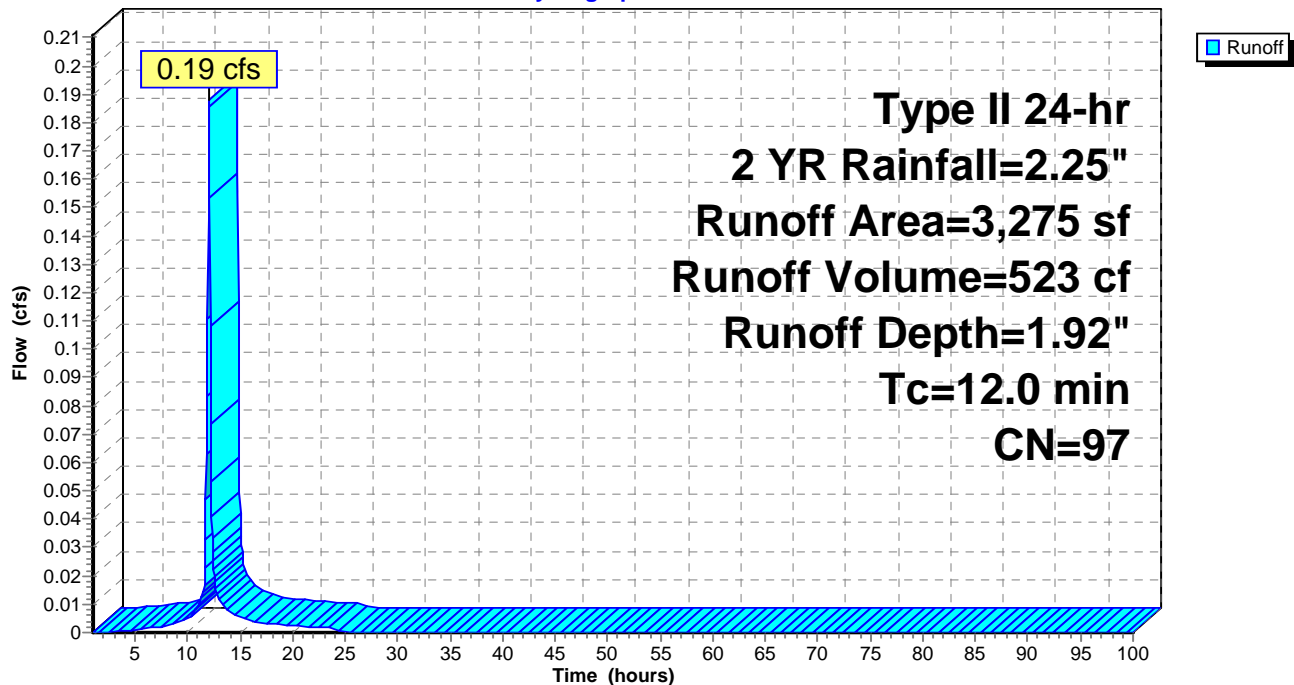
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
114	80	>75% Grass cover, Good, HSG D
3,161	98	Paved parking, HSG D
3,275	97	Weighted Average
114		3.48% Pervious Area
3,161		96.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 7: Area 7**

Hydrograph





**Summary for Subcatchment 8: Area 8**

Runoff = 0.16 cfs @ 12.03 hrs, Volume= 454 cf, Depth= 1.92"

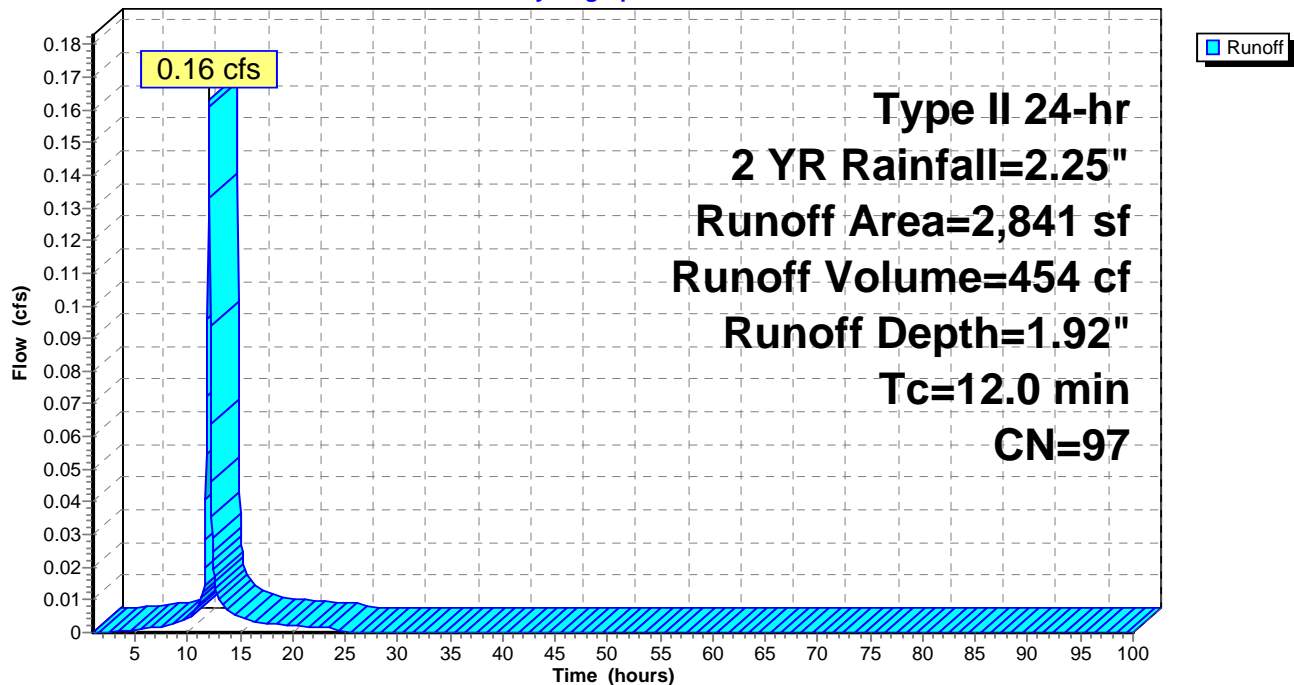
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
109	80	>75% Grass cover, Good, HSG D
2,732	98	Paved parking, HSG D
2,841	97	Weighted Average
109		3.84% Pervious Area
2,732		96.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 8: Area 8**

Hydrograph



**Summary for Subcatchment 9: Area 9**

Runoff = 0.12 cfs @ 12.03 hrs, Volume= 345 cf, Depth= 1.92"

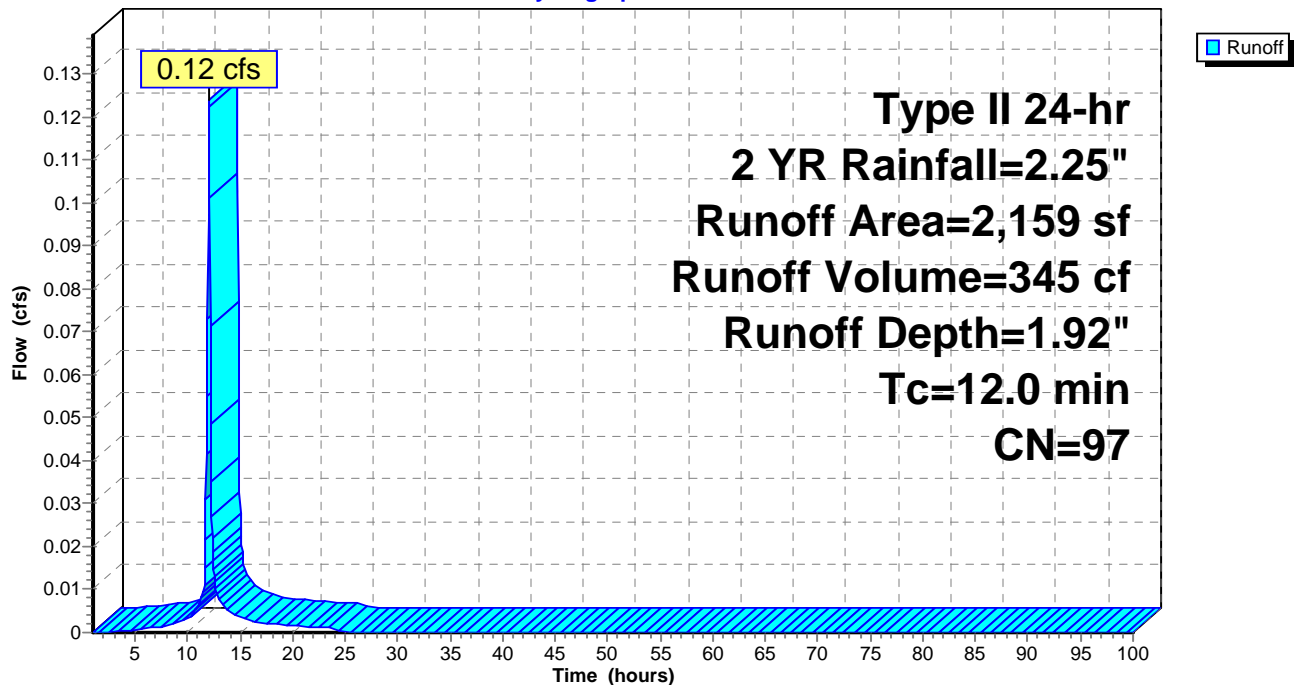
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
117	80	>75% Grass cover, Good, HSG D
2,042	98	Paved parking, HSG D
2,159	97	Weighted Average
117		5.42% Pervious Area
2,042		94.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9: Area 9**

Hydrograph



**Summary for Subcatchment 9A: Area 9A**

Runoff = 0.24 cfs @ 12.03 hrs, Volume= 685 cf, Depth= 2.02"

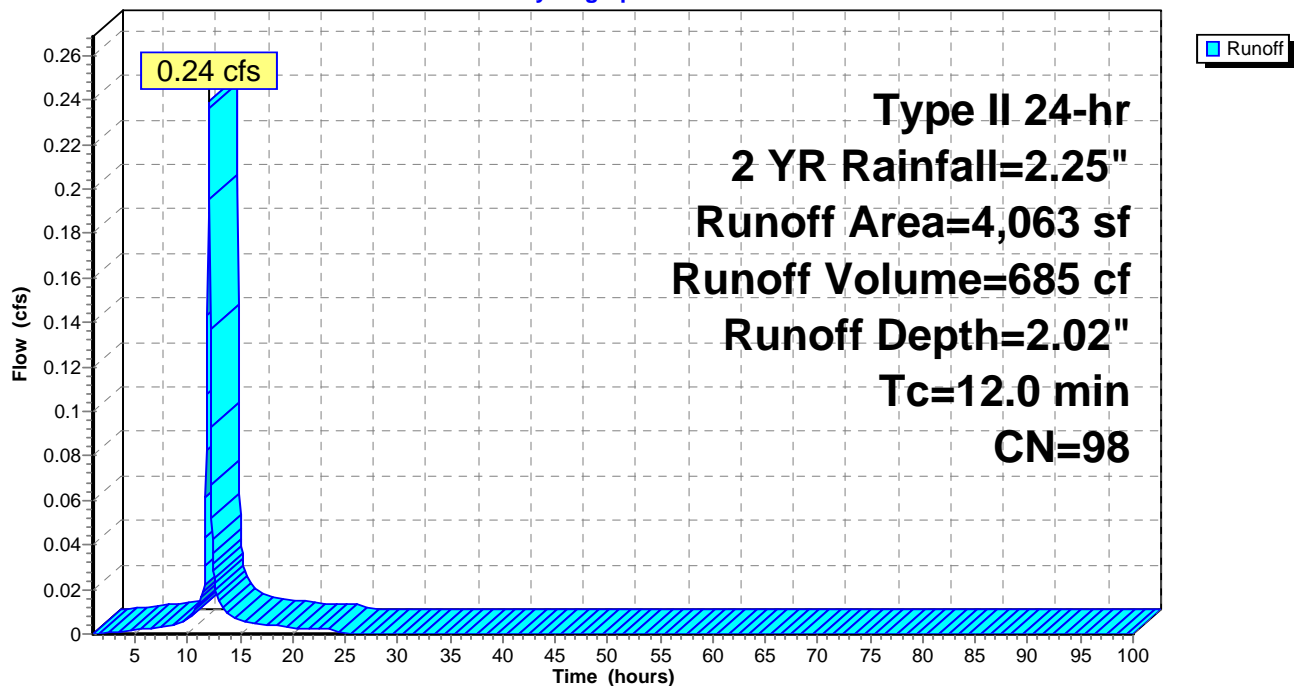
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
4,063	98	Paved parking, HSG D
4,063		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9A: Area 9A**

Hydrograph



**Summary for Subcatchment 9B: Area 9B**

Runoff = 0.33 cfs @ 12.03 hrs, Volume= 929 cf, Depth= 2.02"

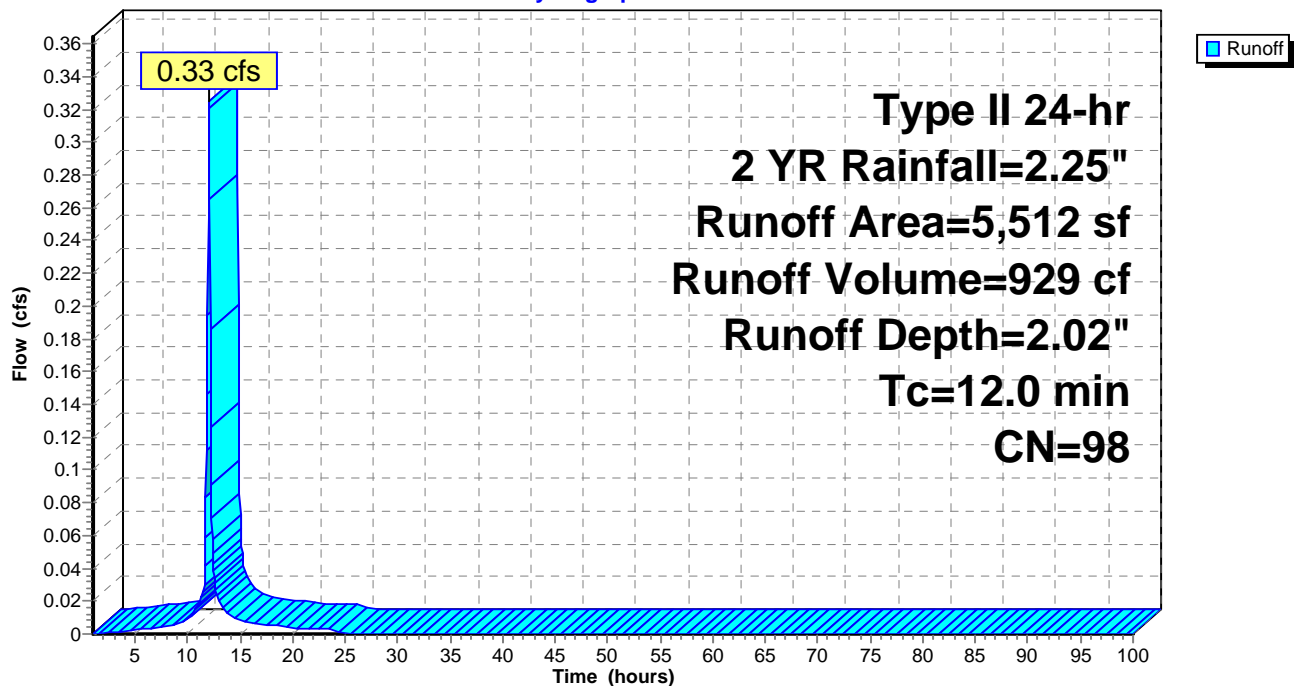
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
5,512	98	Paved parking, HSG D
5,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9B: Area 9B**

Hydrograph



**Summary for Subcatchment 15: Area 15**

Runoff = 0.18 cfs @ 12.03 hrs, Volume= 510 cf, Depth= 2.02"

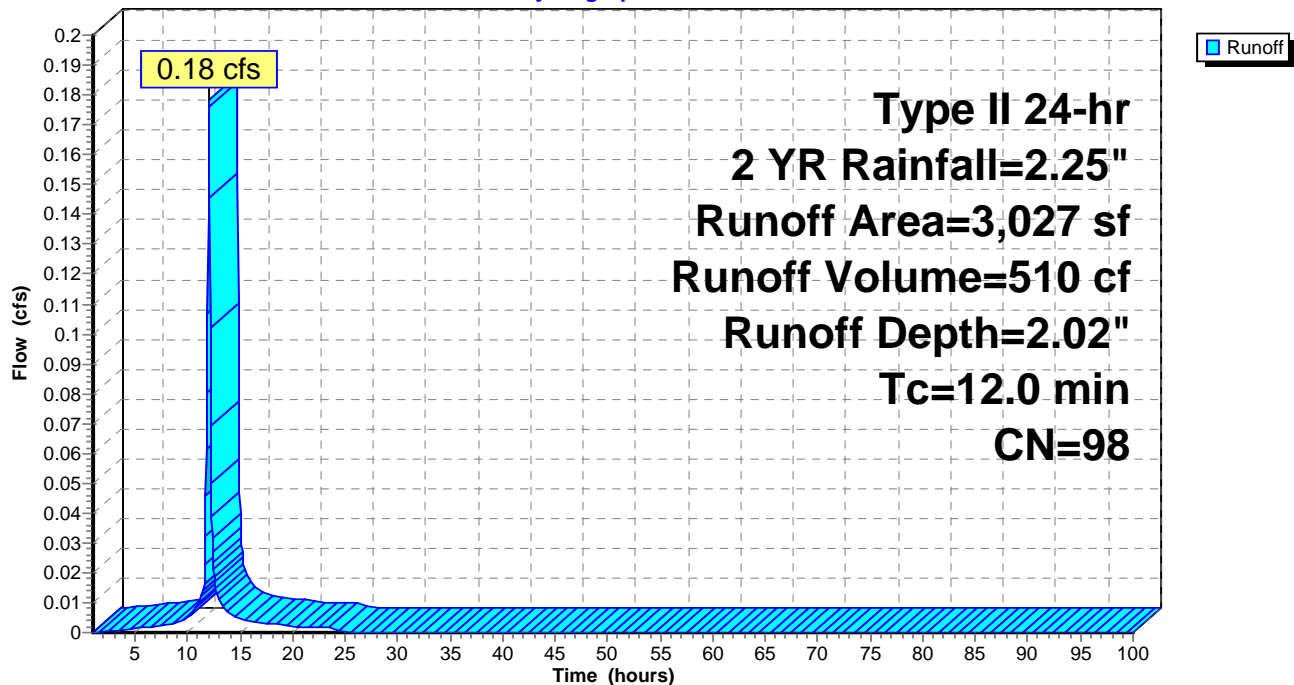
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
76	80	>75% Grass cover, Good, HSG D
2,951	98	Paved parking, HSG D
3,027	98	Weighted Average
76		2.51% Pervious Area
2,951		97.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 15: Area 15**

Hydrograph



**Summary for Subcatchment 15A: Area 15A**

Runoff = 0.22 cfs @ 12.03 hrs, Volume= 632 cf, Depth= 2.02"

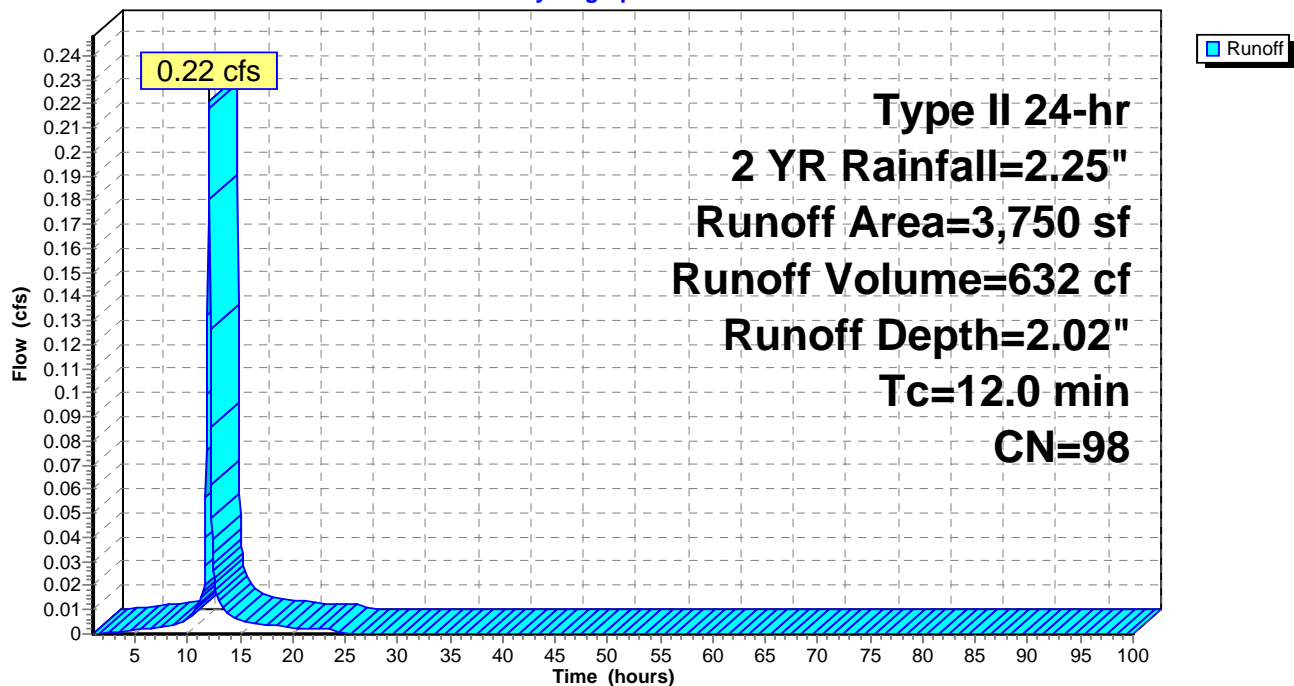
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
3,750	98	Paved parking, HSG D
3,750		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 15A: Area 15A**

Hydrograph



**Summary for Subcatchment 15B: Area 15B**

Runoff = 0.99 cfs @ 12.03 hrs, Volume= 2,830 cf, Depth= 2.02"

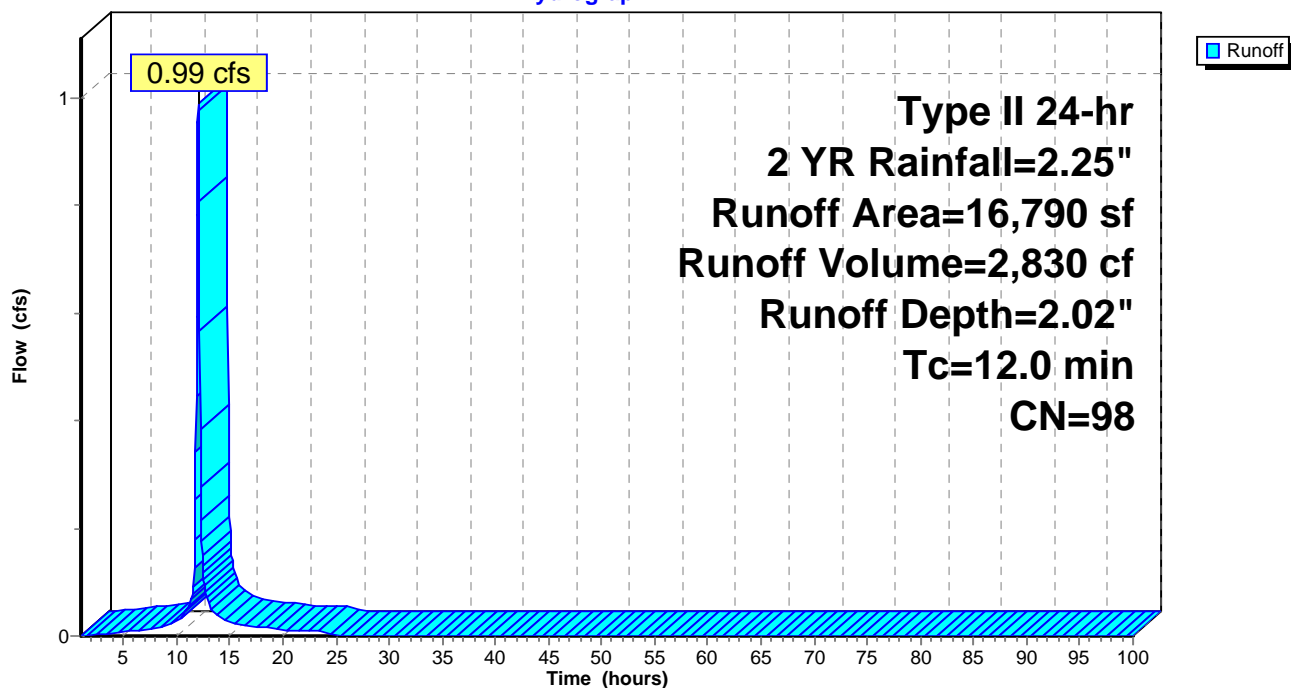
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
16,790	98	Paved parking, HSG D
16,790		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 15B: Area 15B**

Hydrograph



### Summary for Subcatchment 16: Area 16

Runoff = 0.16 cfs @ 12.03 hrs, Volume= 458 cf, Depth= 2.02"

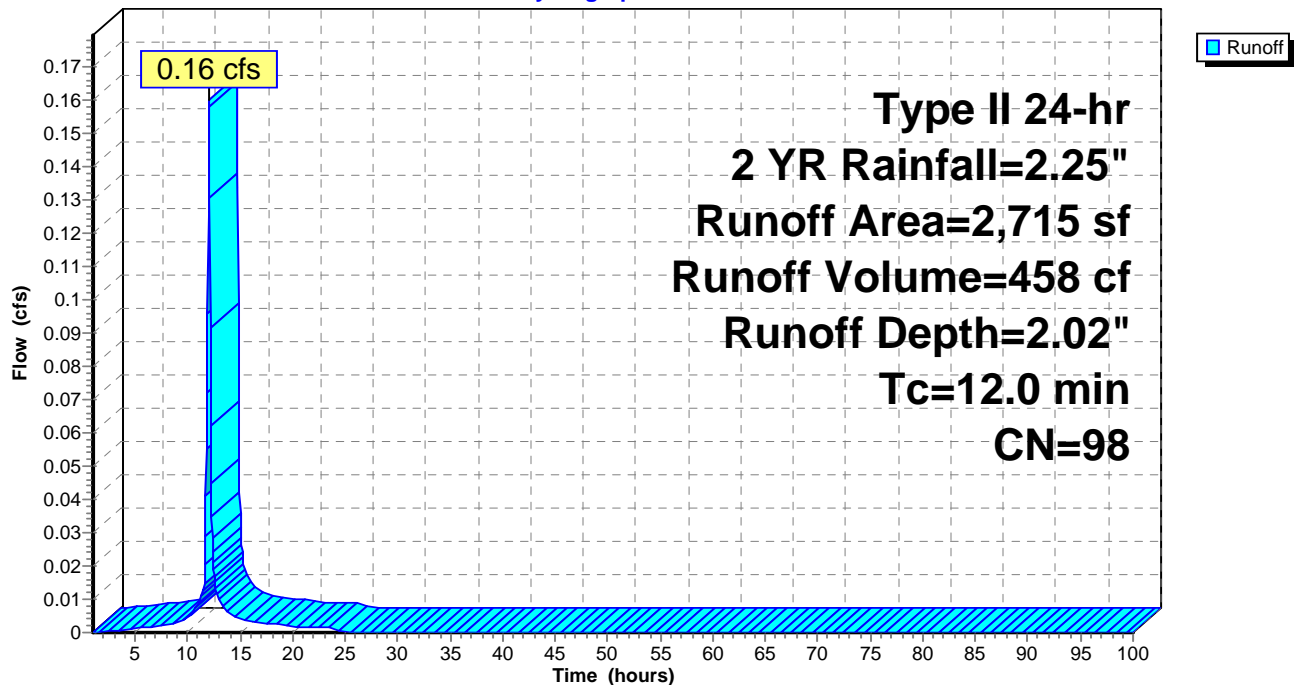
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
43	80	>75% Grass cover, Good, HSG D
2,672	98	Paved parking, HSG D
2,715	98	Weighted Average
43		1.58% Pervious Area
2,672		98.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

### Subcatchment 16: Area 16

Hydrograph





**Summary for Pond 84": 84" TRUNK SEWER**

Inflow Area = 112,891 sf, 98.39% Impervious, Inflow Depth > 10.68" for 2 YR event  
 Inflow = 4.51 cfs @ 12.09 hrs, Volume= 100,453 cf  
 Outflow = 4.51 cfs @ 12.09 hrs, Volume= 100,454 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 4.51 cfs @ 12.09 hrs, Volume= 100,454 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 590.84' @ 12.09 hrs

Flood Elev= 647.22'

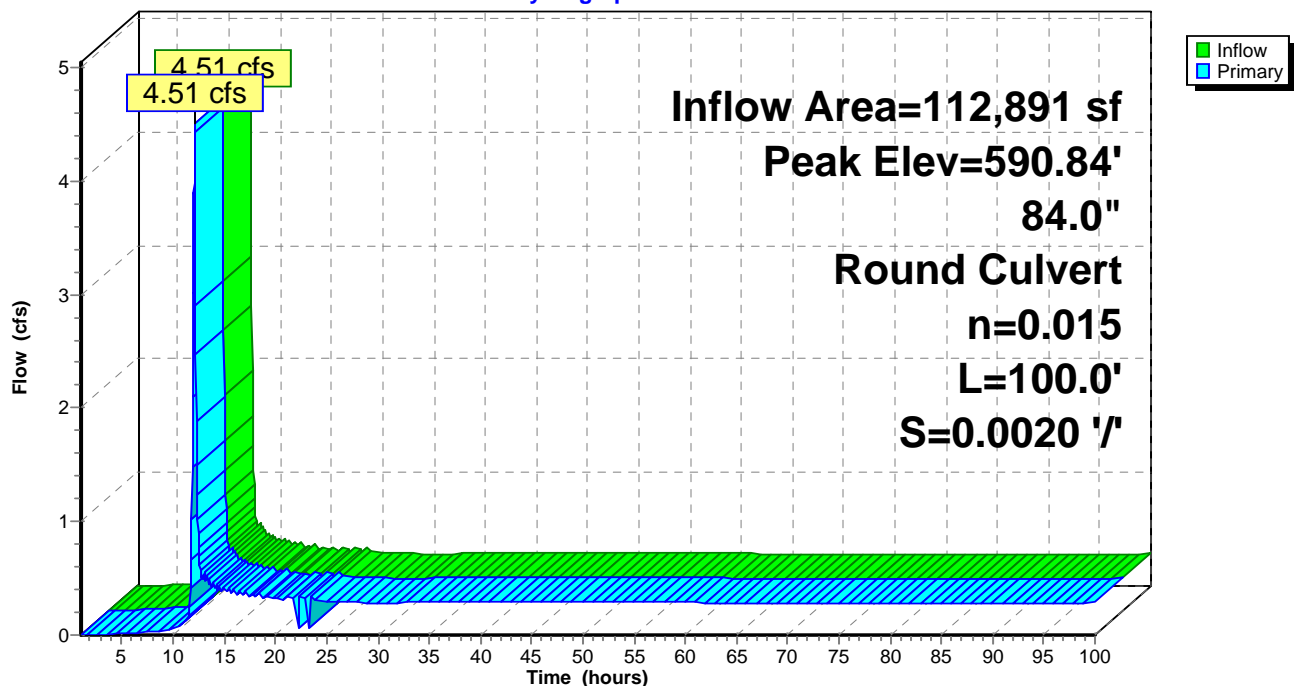
Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	<b>84.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 38.48 sf

**Primary OutFlow** Max=4.31 cfs @ 12.09 hrs HW=590.82' (Free Discharge)

1=Culvert (Barrel Controls 4.31 cfs @ 2.62 fps)

**Pond 84": 84" TRUNK SEWER**

Hydrograph



**Summary for Pond DI 868: DI #868**

[80] Warning: Exceeded Pond DS 6 by 0.27' @ 1.00 hrs (0.10 cfs 7,515 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth > 2.96" for 2 YR event  
 Inflow = 0.57 cfs @ 12.03 hrs, Volume= 5,761 cf  
 Outflow = 0.57 cfs @ 12.03 hrs, Volume= 5,761 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.57 cfs @ 12.03 hrs, Volume= 5,761 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

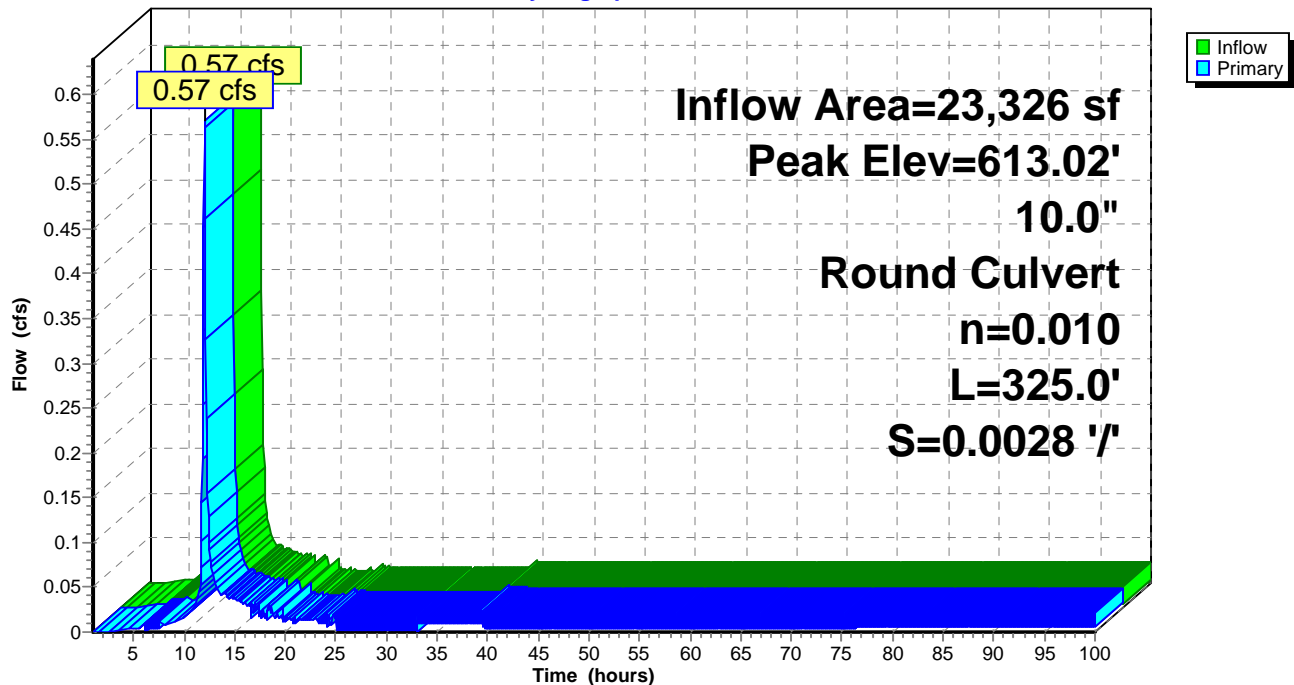
Peak Elev= 613.02' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.56 cfs @ 12.03 hrs HW=613.01' TW=590.78' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.56 cfs @ 2.52 fps)

**Pond DI 868: DI #868****Hydrograph**

**Summary for Pond DS 10: Planter PB-8A**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=63)

Inflow Area = 2,841 sf, 96.16% Impervious, Inflow Depth = 1.92" for 2 YR event  
 Inflow = 0.16 cfs @ 12.03 hrs, Volume= 454 cf  
 Outflow = 0.01 cfs @ 15.93 hrs, Volume= 129 cf, Atten= 94%, Lag= 233.6 min  
 Primary = 0.01 cfs @ 15.93 hrs, Volume= 1,365 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 612.69' @ 13.89 hrs Surf.Area= 391 sf Storage= 353 cf

Plug-Flow detention time= 497.6 min calculated for 129 cf (28% of inflow)  
 Center-of-Mass det. time= 336.4 min ( 1,114.1 - 777.7 )

Volume	Invert	Avail.Storage	Storage Description	
#1	610.43'	638 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.43	391	0.0	0	0
613.75	391	40.0	519	519
613.76	141	20.0	1	520
615.09	141	50.0	94	614
615.26	141	100.0	24	638

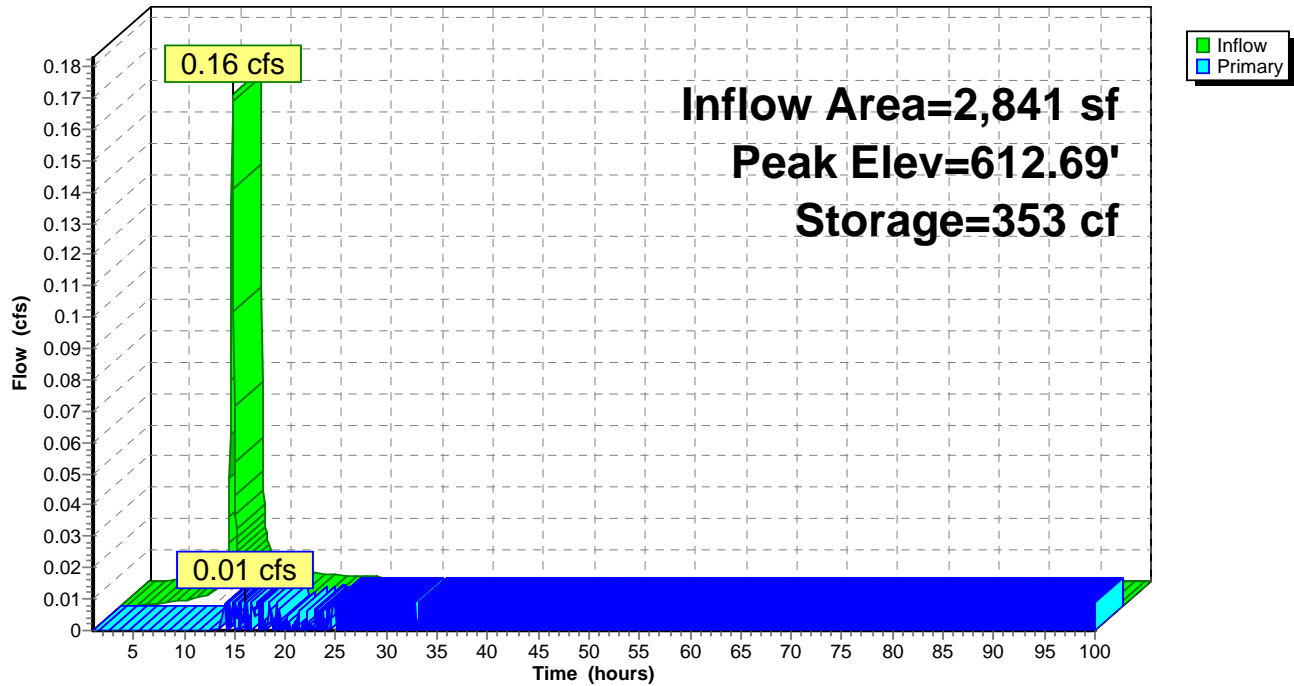
Device	Routing	Invert	Outlet Devices
#1	Primary	611.95'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.95' / 611.88' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.76'	<b>6.0" Round Culvert</b> L= 28.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.76' / 610.76' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.43'	<b>1.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.25'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 15.93 hrs HW=612.66' TW=612.66' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 10: Planter PB-8A

Hydrograph



**Summary for Pond DS 11: Planter PB-9A**

Inflow Area = 2,159 sf, 94.58% Impervious, Inflow Depth = 1.92" for 2 YR event  
 Inflow = 0.12 cfs @ 12.03 hrs, Volume= 345 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.01 cfs @ 39.40 hrs, Volume= 989 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 612.33' @ 24.70 hrs Surf.Area= 391 sf Storage= 345 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.12'	664 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.12	391	0.0	0	0
613.61	391	40.0	546	546
613.62	141	20.0	1	546
614.95	141	50.0	94	640
615.12	141	100.0	24	664

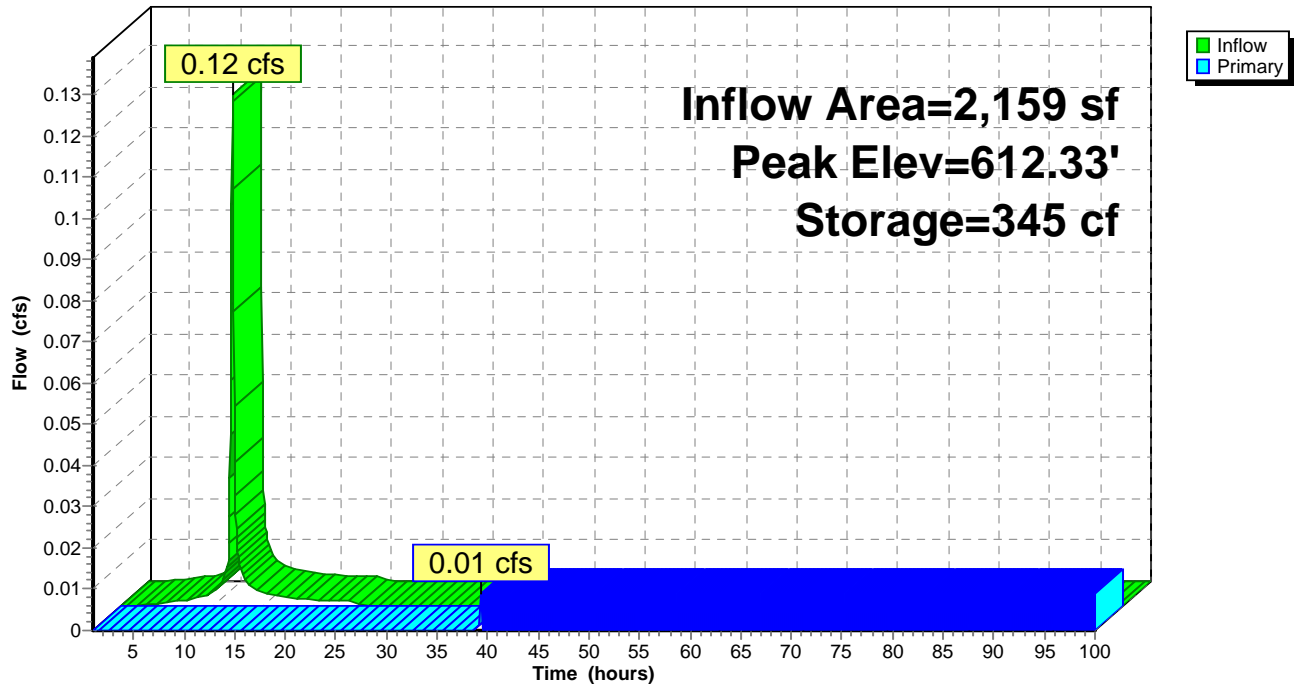
Device	Routing	Invert	Outlet Devices
#1	Primary	611.91'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.91' / 611.84' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.62'	<b>6.0" Round Culvert</b> L= 27.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.62' / 610.62' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.12'	<b>1.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.11'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 39.40 hrs HW=612.33' TW=612.64' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

Pond DS 11: Planter PB-9A

Hydrograph



**Summary for Pond DS 14: DS 14**

Inflow Area = 19,614 sf, 98.41% Impervious, Inflow Depth = 1.99" for 2 YR event  
 Inflow = 1.15 cfs @ 12.03 hrs, Volume= 3,252 cf  
 Outflow = 1.15 cfs @ 12.03 hrs, Volume= 3,252 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.61 cfs @ 12.05 hrs, Volume= 2,528 cf  
 Secondary = 0.54 cfs @ 12.03 hrs, Volume= 723 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.50' @ 12.05 hrs

Flood Elev= 647.22'

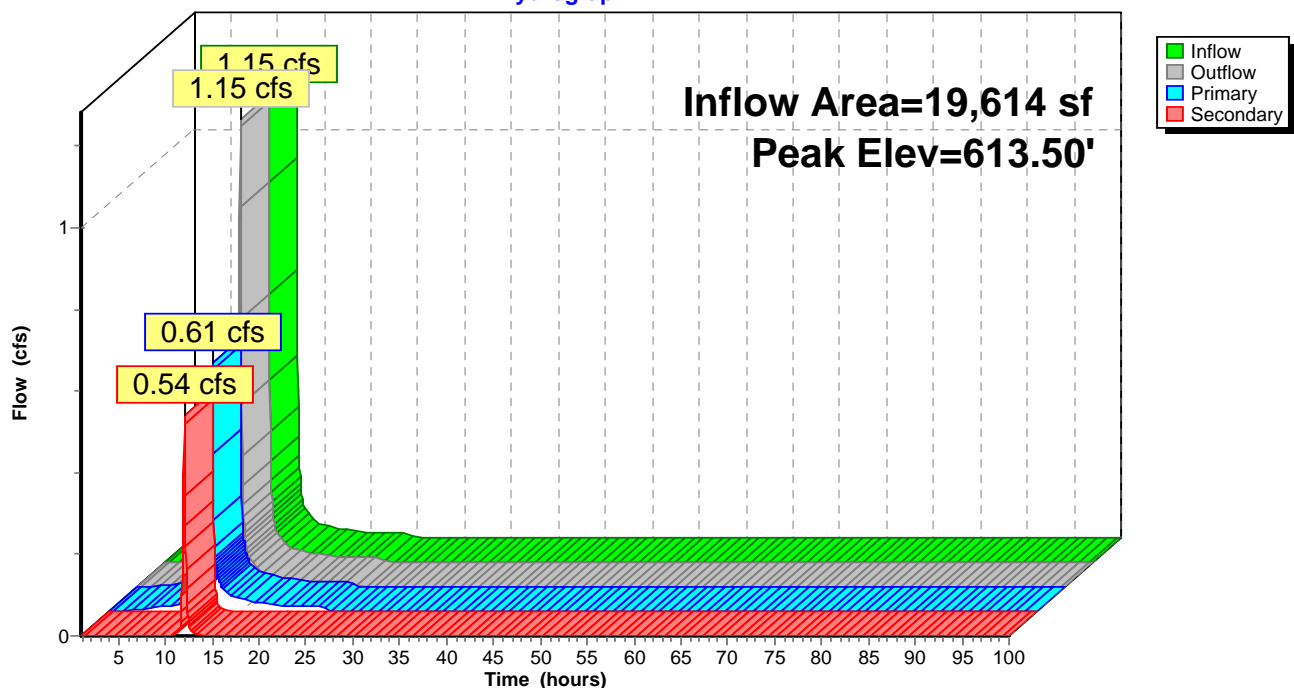
Device	Routing	Invert	Outlet Devices
#1	Primary	612.80'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.80' / 612.75' S= 0.0125 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	612.90'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.90' / 612.83' S= 0.0117 ' / ' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

**Primary OutFlow** Max=0.61 cfs @ 12.05 hrs HW=613.50' TW=612.69' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 0.61 cfs @ 3.10 fps)

**Secondary OutFlow** Max=0.52 cfs @ 12.03 hrs HW=613.50' TW=613.05' (Dynamic Tailwater)

↑**2=Culvert** (Barrel Controls 0.52 cfs @ 2.79 fps)

**Pond DS 14: DS 14****Hydrograph**

**Summary for Pond DS 15: Planter PB-4A**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=17)

[80] Warning: Exceeded Pond DS 14 by 0.02' @ 24.70 hrs (0.00 cfs 148 cf)

Inflow Area = 19,614 sf, 98.41% Impervious, Inflow Depth = 1.55" for 2 YR event  
 Inflow = 0.61 cfs @ 12.05 hrs, Volume= 2,528 cf  
 Outflow = 0.27 cfs @ 12.20 hrs, Volume= 1,339 cf, Atten= 56%, Lag= 9.1 min  
 Primary = 0.27 cfs @ 12.20 hrs, Volume= 83,832 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 613.16' @ 12.20 hrs Surf.Area= 1,055 sf Storage= 1,333 cf

Plug-Flow detention time= 283.1 min calculated for 1,339 cf (53% of inflow)  
 Center-of-Mass det. time= 138.2 min ( 921.0 - 782.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.00'	1,803 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.00	1,055	0.0	0	0
613.49	1,055	40.0	1,473	1,473
613.50	394	20.0	1	1,474
614.83	394	50.0	262	1,736
615.00	394	100.0	67	1,803

Device	Routing	Invert	Outlet Devices
#1	Primary	611.93'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.93' / 611.86' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.50'	<b>6.0" Round Culvert</b> L= 61.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.50' / 610.50' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.00'	<b>11.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.99'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

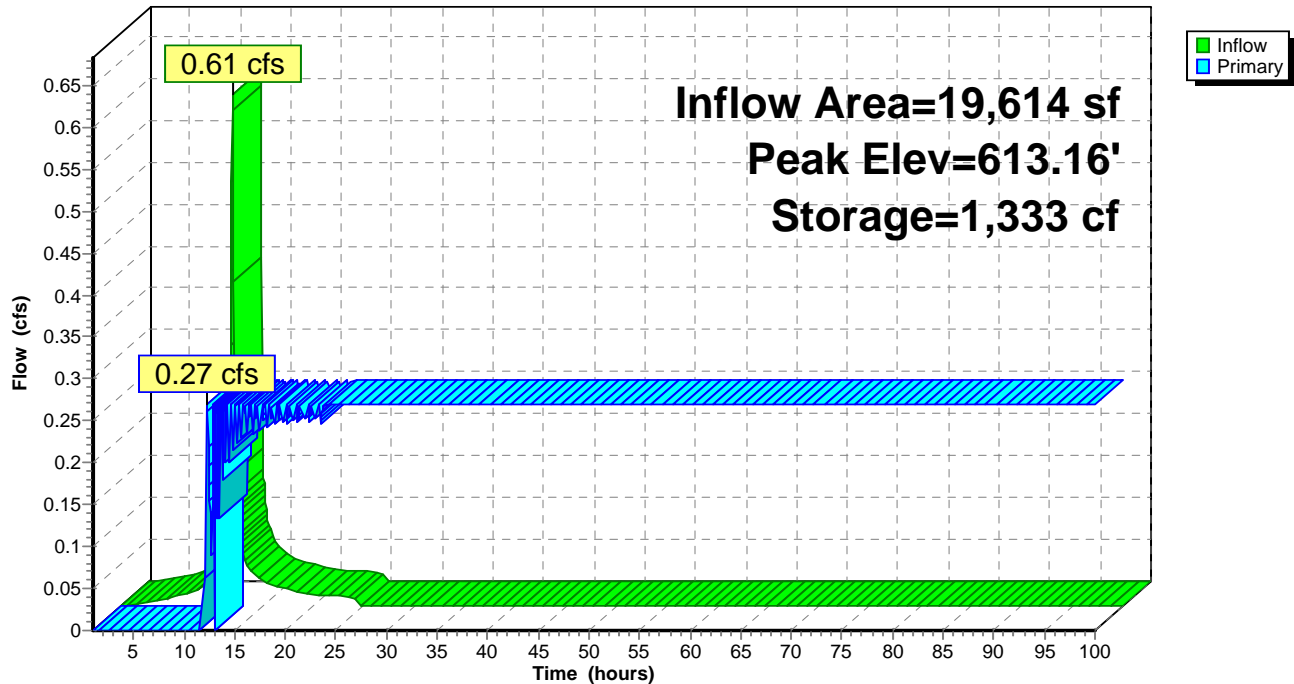
**Primary OutFlow** Max=0.27 cfs @ 12.20 hrs HW=613.16' TW=613.02' (Dynamic Tailwater)

- 1=Culvert (Passes 0.27 cfs of 0.35 cfs potential flow)
- 2=Culvert (Passes 0.27 cfs of 0.28 cfs potential flow)
- 3=Exfiltration (Exfiltration Controls 0.27 cfs)
- 4=Orifice/Grate ( Controls 0.00 cfs)



Pond DS 15: Planter PB-4A

Hydrograph



**Summary for Pond DS 2: Planter PB-1A**

Inflow Area = 5,276 sf, 95.77% Impervious, Inflow Depth = 1.92" for 2 YR event  
 Inflow = 0.30 cfs @ 12.03 hrs, Volume= 843 cf  
 Outflow = 0.02 cfs @ 13.19 hrs, Volume= 609 cf, Atten= 94%, Lag= 69.4 min  
 Primary = 0.02 cfs @ 13.19 hrs, Volume= 609 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 615.50' @ 13.19 hrs Surf.Area= 273 sf Storage= 609 cf

Plug-Flow detention time= 1,605.3 min calculated for 609 cf (72% of inflow)  
 Center-of-Mass det. time= 1,512.8 min ( 2,290.5 - 777.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.50'	610 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.50	273	0.0	0	0
613.99	273	40.0	381	381
614.00	273	20.0	1	382
615.33	273	50.0	182	563
615.50	273	100.0	46	610

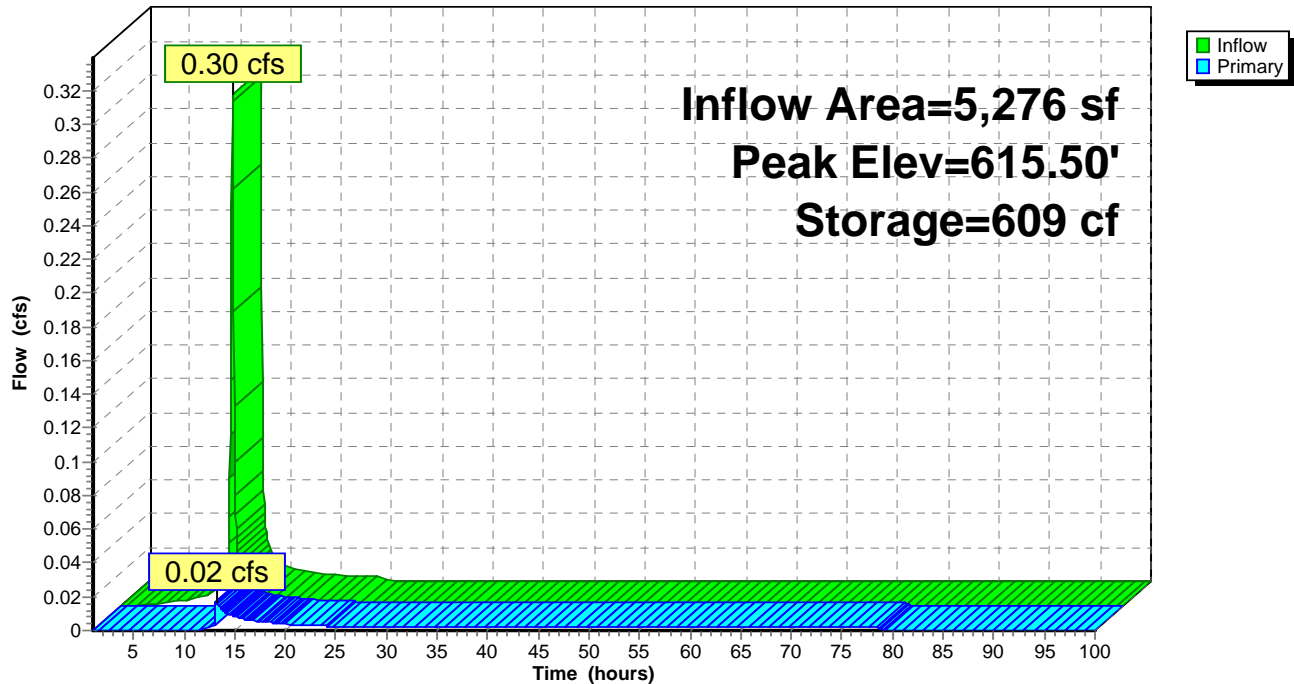
Device	Routing	Invert	Outlet Devices
#1	Primary	612.64'	<b>6.0" Round Culvert</b> L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.64' / 612.59' S= 0.0125 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.12'	<b>6.0" Round Culvert</b> L= 39.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.12' / 611.12' S= 0.0000 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.50'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.49'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.02 cfs @ 13.19 hrs HW=615.50' TW=590.31' (Dynamic Tailwater)

1=Culvert (Passes 0.02 cfs of 1.53 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.24 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.01 cfs @ 0.27 fps)

Pond DS 2: Planter PB-1A

Hydrograph



**Summary for Pond DS 28: DS 28**

Inflow Area = 9,492 sf, 98.75% Impervious, Inflow Depth > 1.85" for 2 YR event  
 Inflow = 0.61 cfs @ 12.01 hrs, Volume= 1,466 cf  
 Outflow = 0.61 cfs @ 12.01 hrs, Volume= 1,468 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.61 cfs @ 12.01 hrs, Volume= 1,468 cf

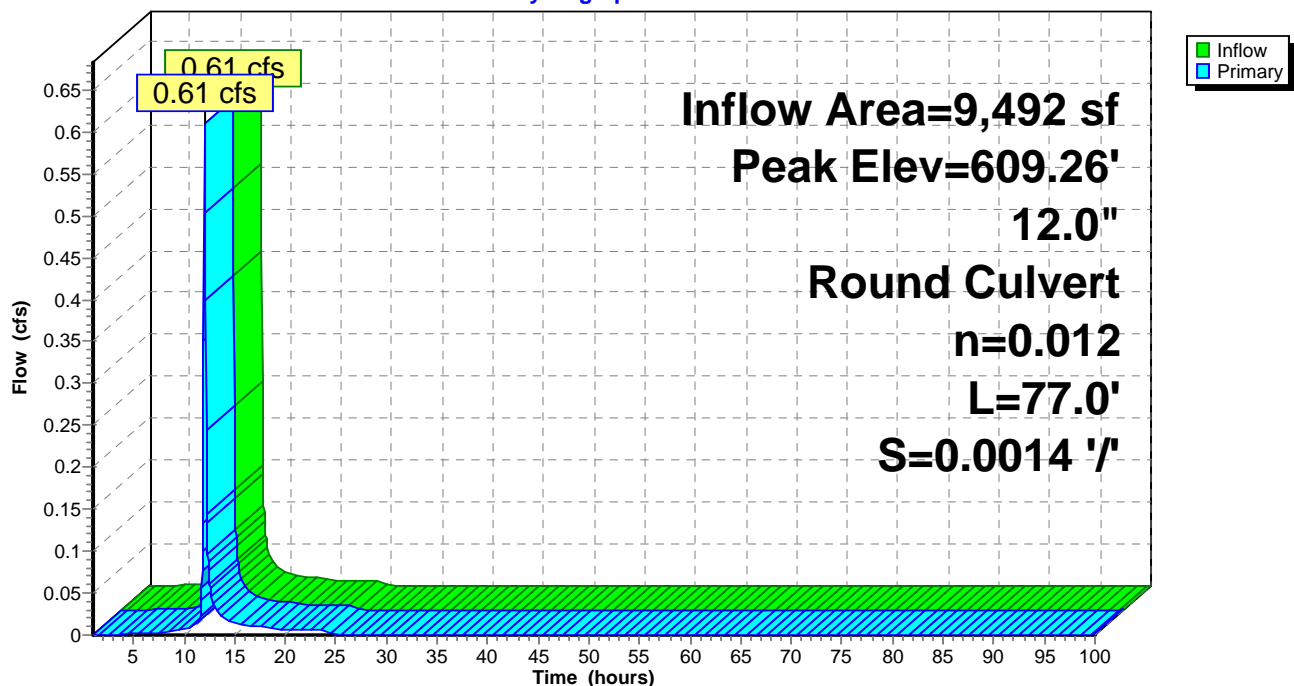
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.26' @ 12.01 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.58 cfs @ 12.01 hrs HW=609.24' TW=590.78' (Dynamic Tailwater)  
 ↳ **1=Culvert** (Barrel Controls 0.58 cfs @ 1.97 fps)

**Pond DS 28: DS 28****Hydrograph**

**Summary for Pond DS 29: Planter PB-1B**

[90] Warning: Qout&gt;Qin may require smaller dt or Finer Routing

[80] Warning: Exceeded Pond DS 30 by 0.09' @ 12.45 hrs (0.23 cfs 5,494 cf)

Inflow Area = 5,742 sf, 97.93% Impervious, Inflow Depth = 1.90" for 2 YR event  
 Inflow = 0.36 cfs @ 12.01 hrs, Volume= 910 cf  
 Outflow = 0.39 cfs @ 12.01 hrs, Volume= 834 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.39 cfs @ 12.01 hrs, Volume= 834 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 614.06' @ 12.00 hrs Surf.Area= 101 sf Storage= 221 cf

Plug-Flow detention time= 732.7 min calculated for 834 cf (92% of inflow)  
 Center-of-Mass det. time= 572.1 min ( 1,507.0 - 934.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	609.10'	225 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
609.10	101	0.0	0	0
612.60	101	40.0	141	141
612.61	101	20.0	0	142
613.93	101	50.0	67	208
614.10	101	100.0	17	225

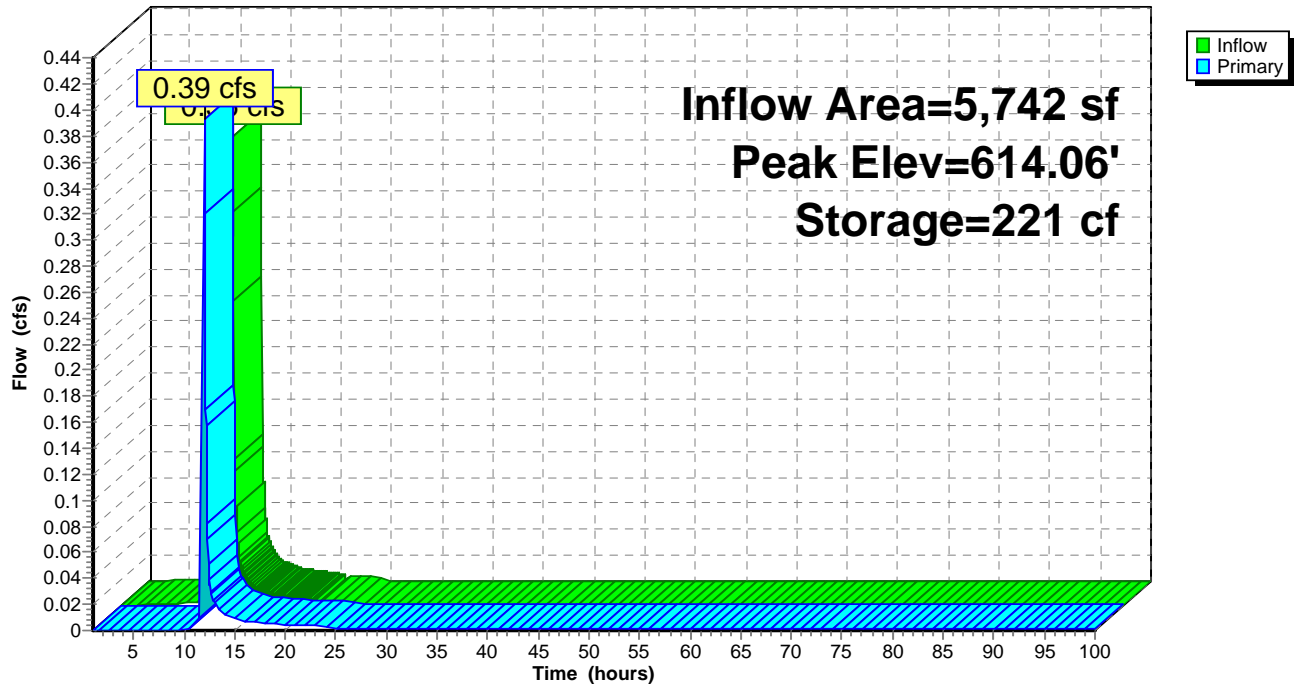
Device	Routing	Invert	Outlet Devices
#1	Primary	610.41'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.41' / 610.35' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.75'	<b>6.0" Round Culvert</b> L= 50.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 609.75' / 609.75' S= 0.0000 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	609.10'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.00'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.37 cfs @ 12.01 hrs HW=614.06' TW=609.25' (Dynamic Tailwater)

- 1=Culvert (Passes 0.37 cfs of 1.74 cfs potential flow)
- 2=Culvert (Passes 0.00 cfs of 1.29 cfs potential flow)
- 3=Exfiltration (Exfiltration Controls 0.00 cfs)
- 4=Orifice/Grate (Weir Controls 0.37 cfs @ 0.79 fps)

Pond DS 29: Planter PB-1B

Hydrograph



## Summary for Pond DS 3: DS 3

Inflow Area = 34,149 sf, 98.47% Impervious, Inflow Depth = 2.01" for 2 YR event  
 Inflow = 1.85 cfs @ 12.06 hrs, Volume= 5,721 cf  
 Outflow = 1.85 cfs @ 12.06 hrs, Volume= 5,721 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.56 cfs @ 12.04 hrs, Volume= 1,905 cf  
 Secondary = 1.31 cfs @ 12.07 hrs, Volume= 3,815 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 615.76' @ 12.07 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.60'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.60' / 612.55' S= 0.0125 ' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	613.60'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 613.60' / 613.55' S= 0.0083 ' / Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

**Primary OutFlow** Max=0.55 cfs @ 12.04 hrs HW=615.64' TW=615.31' (Dynamic Tailwater)

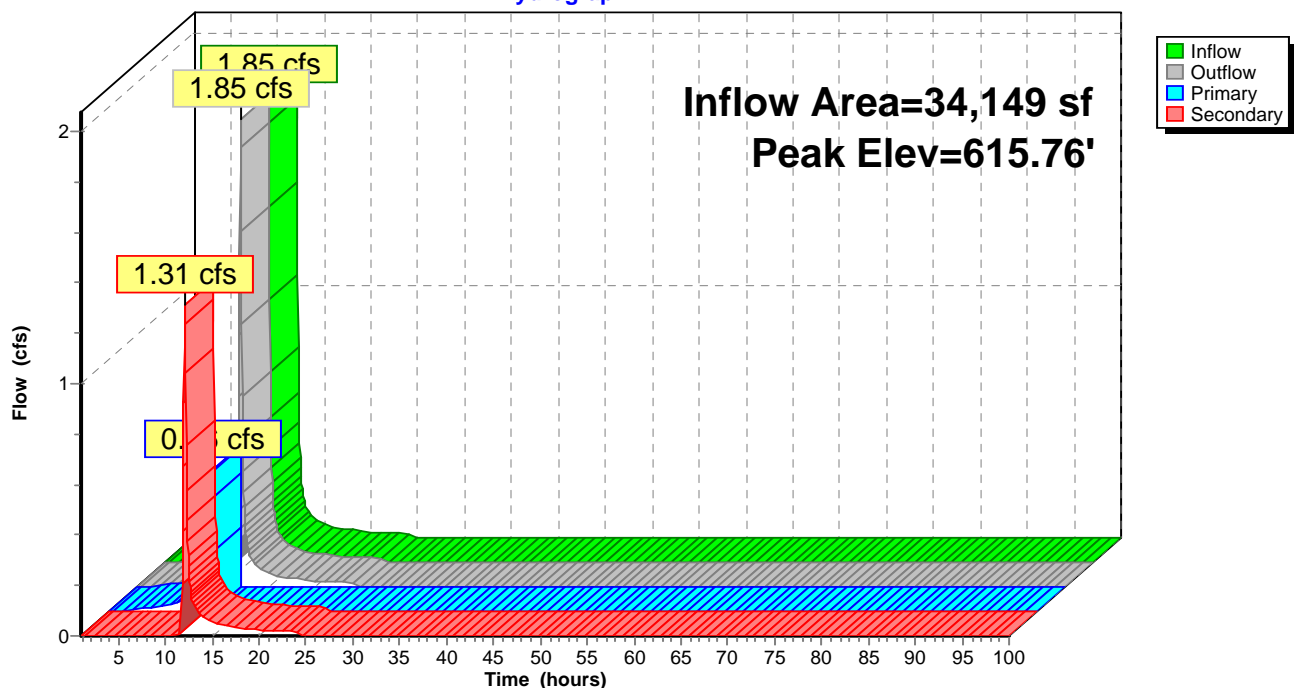
↑**1=Culvert** (Inlet Controls 0.55 cfs @ 2.79 fps)

**Secondary OutFlow** Max=1.29 cfs @ 12.07 hrs HW=615.71' TW=590.81' (Dynamic Tailwater)

↑**2=Culvert** (Inlet Controls 1.29 cfs @ 6.57 fps)

## Pond DS 3: DS 3

Hydrograph



**Summary for Pond DS 30: Planter PB-2B**

[93] Warning: Storage range exceeded by 0.19'

[90] Warning: Qout&gt;Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=122)

Inflow Area = 2,715 sf, 98.42% Impervious, Inflow Depth = 2.02" for 2 YR event  
 Inflow = 0.16 cfs @ 12.03 hrs, Volume= 458 cf  
 Outflow = 0.19 cfs @ 12.01 hrs, Volume= 400 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.19 cfs @ 12.01 hrs, Volume= 400 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 614.12' @ 12.01 hrs Surf.Area= 49 sf Storage= 109 cf

Plug-Flow detention time= 444.7 min calculated for 400 cf (87% of inflow)

Center-of-Mass det. time= 383.7 min ( 1,150.0 - 766.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	608.93'	109 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.93	49	0.0	0	0
612.43	49	40.0	69	69
612.44	49	20.0	0	69
613.76	49	50.0	32	101
613.93	49	100.0	8	109

Device	Routing	Invert	Outlet Devices
#1	Primary	611.87'	<b>6.0" Round Culvert</b> L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.87' / 611.20' S= 0.0114 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.43'	<b>6.0" Round Culvert</b> L= 7.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.43' / 609.43' S= 0.0000 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.93'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.92'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

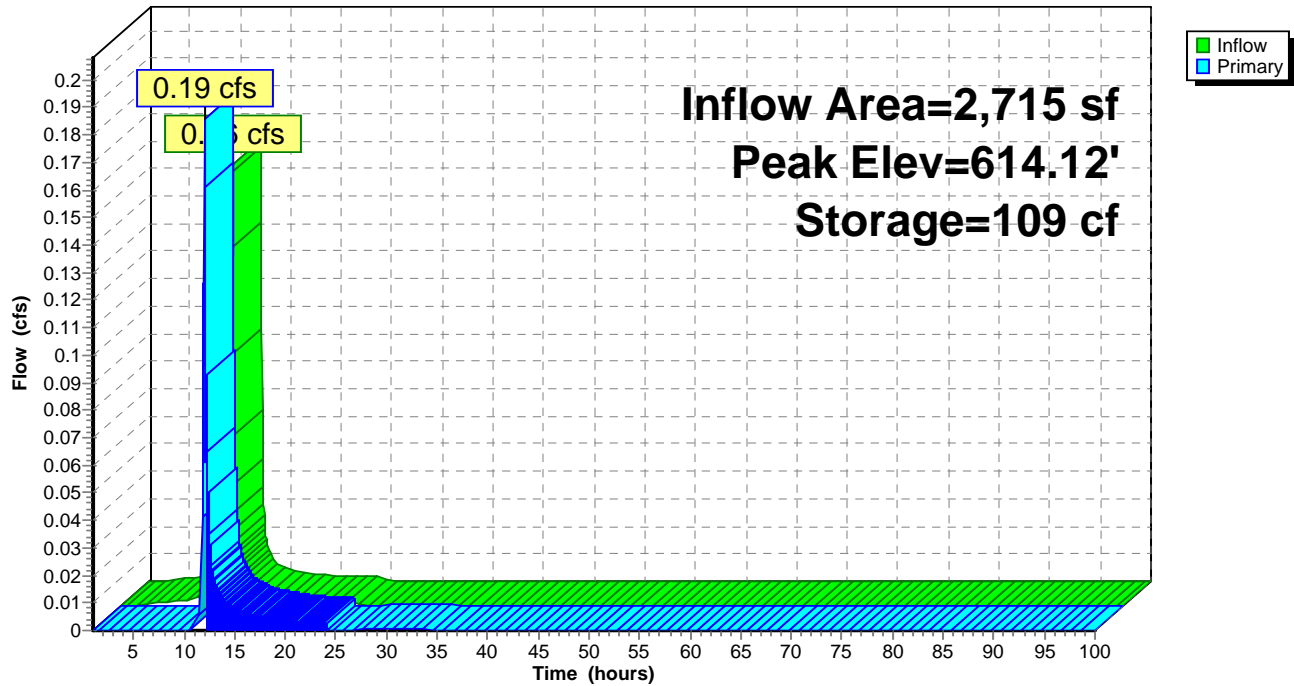
Primary OutFlow Max=0.18 cfs @ 12.01 hrs HW=614.11' TW=614.06' (Dynamic Tailwater)

1=Culvert (Outlet Controls 0.18 cfs @ 0.92 fps)  
 2=Culvert (Passes < 0.22 cfs potential flow)  
 3=Exfiltration (Passes < 0.00 cfs potential flow)  
 4=Orifice/Grate (Passes < 1.57 cfs potential flow)



Pond DS 30: Planter PB-2B

Hydrograph



**Summary for Pond DS 4: Planter PB-2A**

[93] Warning: Storage range exceeded by 0.09'

[90] Warning: Qout&gt;Qin may require smaller dt or Finer Routing

[80] Warning: Exceeded Pond DS 3 by 2.29' @ 24.95 hrs (1.35 cfs 151,801 cf)

Inflow Area = 34,149 sf, 98.47% Impervious, Inflow Depth = 0.67" for 2 YR event  
 Inflow = 0.56 cfs @ 12.04 hrs, Volume= 1,905 cf  
 Outflow = 0.93 cfs @ 12.10 hrs, Volume= 926 cf, Atten= 0%, Lag= 3.6 min  
 Primary = 0.93 cfs @ 12.10 hrs, Volume= 926 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 615.48' @ 12.10 hrs Surf.Area= 395 sf Storage= 1,715 cf

Plug-Flow detention time= 1,629.4 min calculated for 925 cf (49% of inflow)  
 Center-of-Mass det. time= 1,531.9 min ( 2,146.1 - 614.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.39'	1,715 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

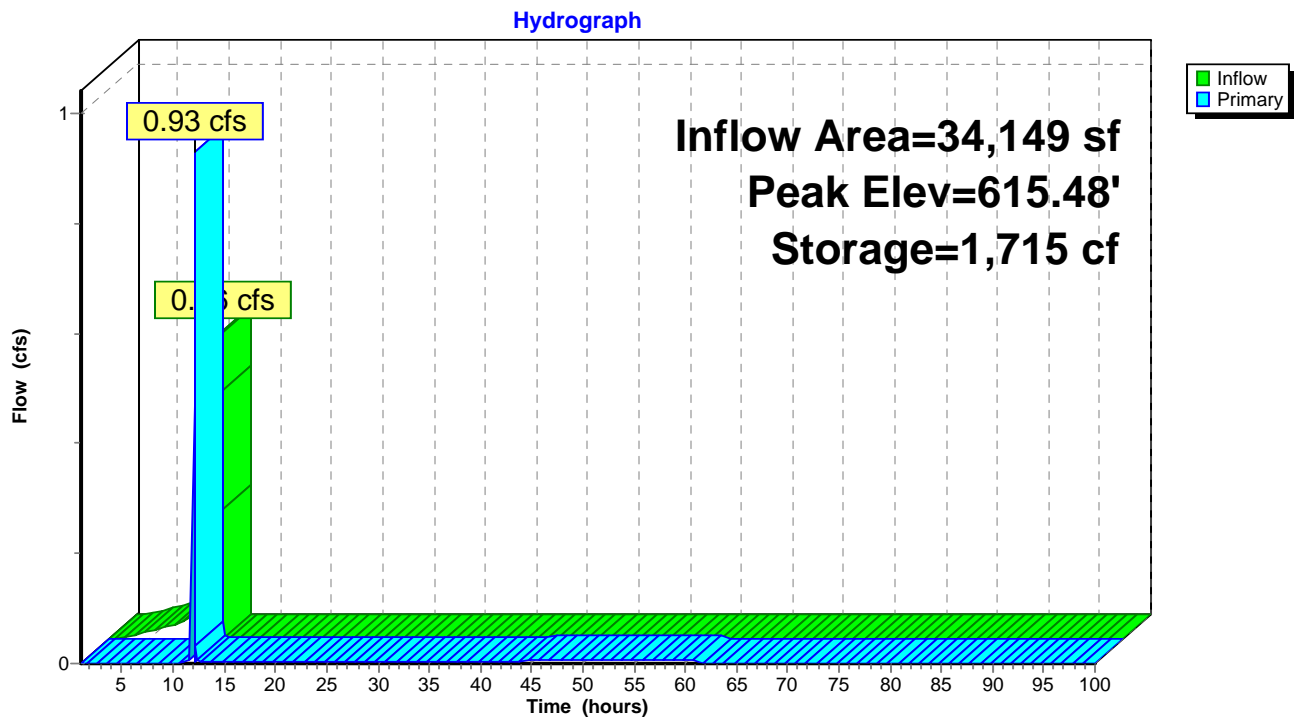
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.39	990	0.0	0	0
613.89	990	40.0	1,386	1,386
613.90	395	20.0	1	1,387
615.22	395	50.0	261	1,648
615.39	395	100.0	67	1,715

Device	Routing	Invert	Outlet Devices
#1	Primary	612.48'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.48' / 612.41' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.89'	<b>6.0" Round Culvert</b> L= 60.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.89' / 610.89' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.39'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.37'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.93 cfs @ 12.10 hrs HW=615.48' TW=613.38' (Dynamic Tailwater)

1=Culvert (Passes 0.93 cfs of 1.37 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 0.91 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.93 cfs @ 1.07 fps)

## Pond DS 4: Planter PB-2A



**Summary for Pond DS 5: Planter PB-3A**

Inflow Area = 2,103 sf, 92.44% Impervious, Inflow Depth = 1.92" for 2 YR event  
 Inflow = 0.12 cfs @ 12.03 hrs, Volume= 336 cf  
 Outflow = 0.00 cfs @ 12.35 hrs, Volume= 128 cf, Atten= 99%, Lag= 19.1 min  
 Primary = 0.00 cfs @ 12.35 hrs, Volume= 128 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 613.76' @ 21.05 hrs Surf.Area= 195 sf Storage= 279 cf

Plug-Flow detention time= 883.3 min calculated for 128 cf (38% of inflow)  
 Center-of-Mass det. time= 747.6 min ( 1,525.3 - 777.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.19'	435 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.19	195	0.0	0	0
613.68	195	40.0	272	272
613.69	195	20.0	0	273
615.02	195	50.0	130	402
615.19	195	100.0	33	435

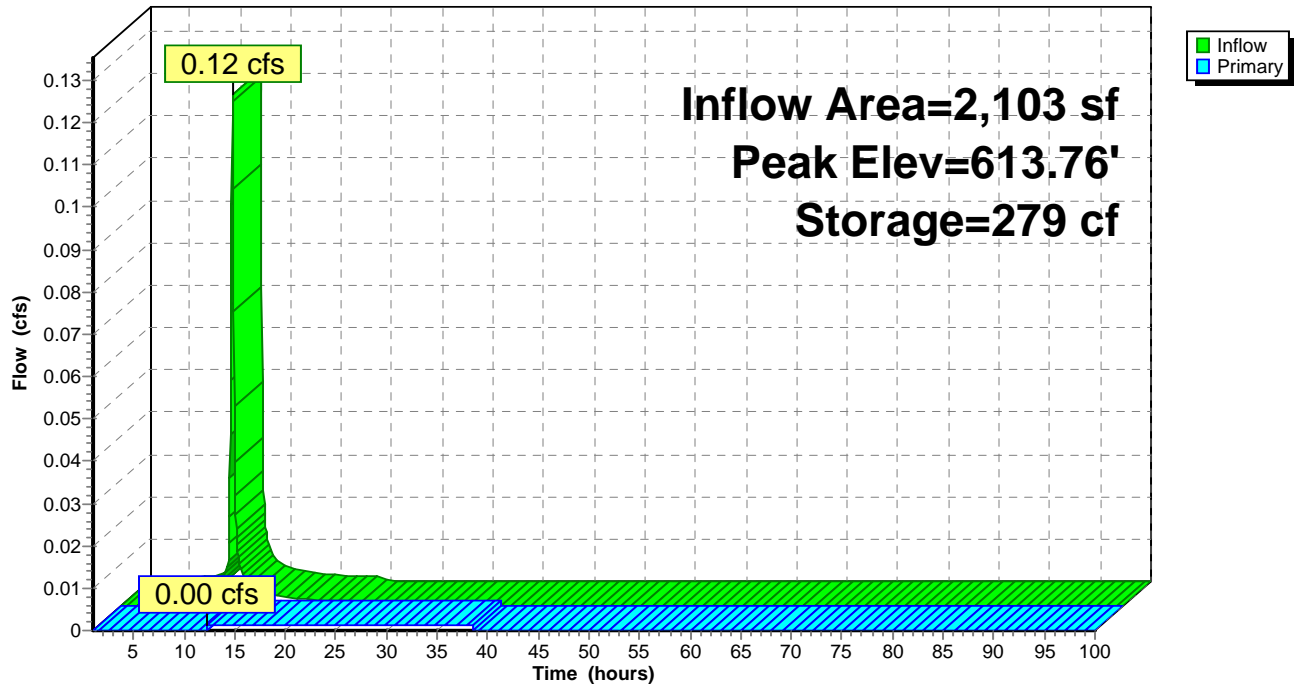
Device	Routing	Invert	Outlet Devices
#1	Primary	612.37'	<b>6.0" Round Culvert</b> L= 5.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.37' / 612.30' S= 0.0127 ' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.61'	<b>6.0" Round Culvert</b> L= 28.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.61' / 610.61' S= 0.0000 ' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.19'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.18'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 12.35 hrs HW=612.96' TW=612.91' (Dynamic Tailwater)

1=Culvert (Passes 0.00 cfs of 0.21 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 0.21 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate ( Controls 0.00 cfs)

Pond DS 5: Planter PB-3A

Hydrograph



### Summary for Pond DS 6: DS 6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=21)

[80] Warning: Exceeded Pond DS 10 by 2.14' @ 5.15 hrs (0.01 cfs 3,109 cf)

[80] Warning: Exceeded Pond DS 11 by 2.46' @ 5.15 hrs (0.01 cfs 3,226 cf)

[80] Warning: Exceeded Pond DS 9 by 2.08' @ 5.15 hrs (0.01 cfs 2,669 cf)

[80] Warning: Exceeded Pond DS8 by 1.44' @ 11.95 hrs (0.00 cfs 4 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth > 2.96" for 2 YR event

Inflow = 0.57 cfs @ 12.03 hrs, Volume= 5,761 cf

Outflow = 0.57 cfs @ 12.03 hrs, Volume= 5,761 cf, Atten= 0%, Lag= 0.0 min

Primary = 0.57 cfs @ 12.03 hrs, Volume= 5,761 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.18' @ 12.03 hrs

Flood Elev= 647.22'

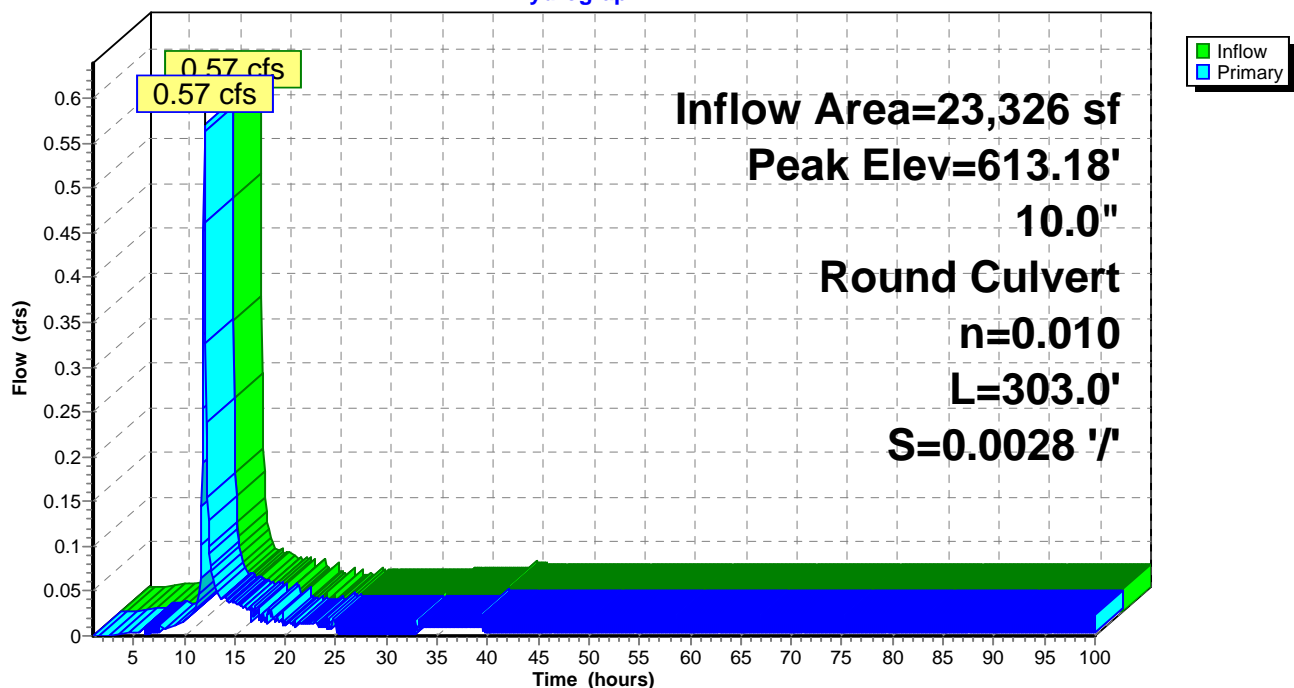
Device	Routing	Invert	Outlet Devices
#1	Primary	612.27'	<b>10.0" Round Culvert</b> L= 303.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.27' / 611.42' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.56 cfs @ 12.03 hrs HW=613.17' TW=613.01' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 0.56 cfs @ 1.18 fps)

### Pond DS 6: DS 6

#### Hydrograph



**Summary for Pond DS 7: Planter PB-5A**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=7)

Inflow Area = 3,711 sf, 98.14% Impervious, Inflow Depth = 2.02" for 2 YR event  
 Inflow = 0.22 cfs @ 12.03 hrs, Volume= 625 cf  
 Outflow = 0.08 cfs @ 12.26 hrs, Volume= 415 cf, Atten= 63%, Lag= 13.5 min  
 Primary = 0.08 cfs @ 12.26 hrs, Volume= 415 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 615.62' @ 12.25 hrs Surf.Area= 84 sf Storage= 383 cf

Plug-Flow detention time= 720.0 min calculated for 415 cf (66% of inflow)  
 Center-of-Mass det. time= 619.4 min ( 1,385.7 - 766.3 )

Volume	Invert	Avail.Storage	Storage Description	
#1	610.79'	397 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.79	234	0.0	0	0
614.28	234	40.0	327	327
614.29	84	20.0	0	327
615.62	84	50.0	56	383
615.79	84	100.0	14	397

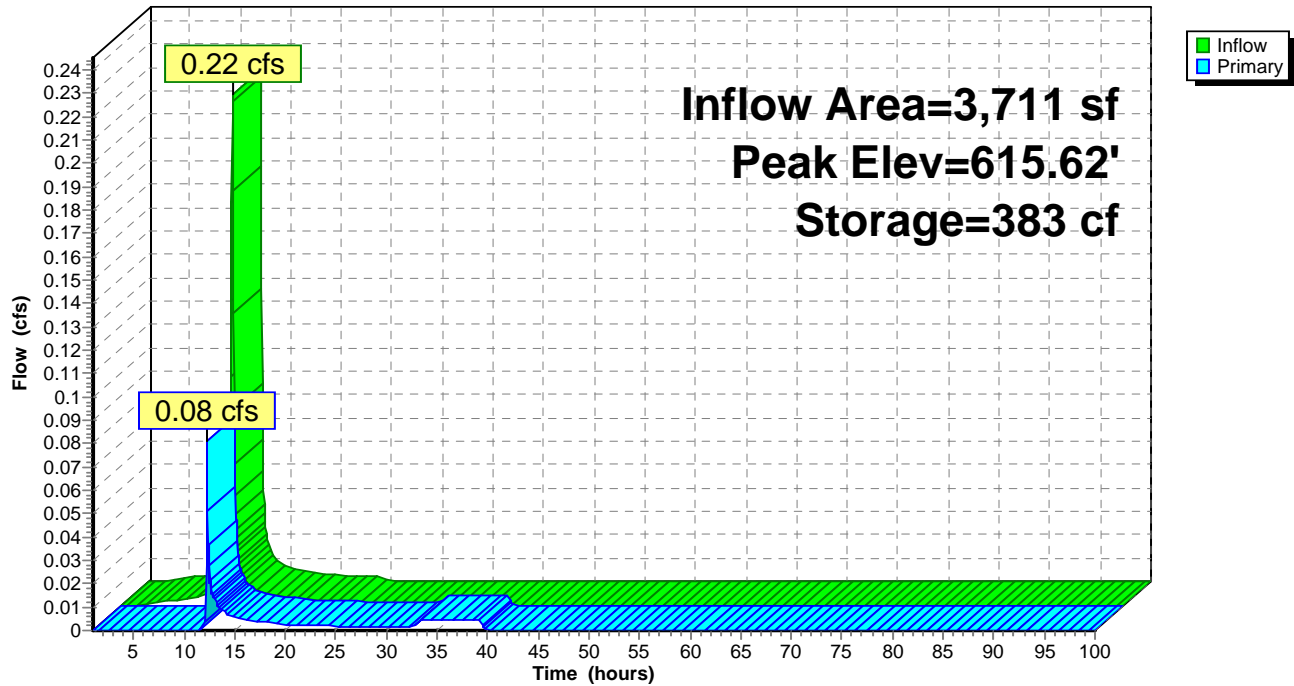
Device	Routing	Invert	Outlet Devices
#1	Primary	613.04'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.29'	<b>6.0" Round Culvert</b> L= 15.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.29' / 611.29' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.79'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.60'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.07 cfs @ 12.26 hrs HW=615.62' TW=612.90' (Dynamic Tailwater)

- 1=Culvert (Passes 0.07 cfs of 1.44 cfs potential flow)
- 2=Culvert (Passes 0.00 cfs of 1.52 cfs potential flow)
- 3=Exfiltration (Exfiltration Controls 0.00 cfs)
- 4=Orifice/Grate (Weir Controls 0.07 cfs @ 0.46 fps)

Pond DS 7: Planter PB-5A

Hydrograph





**Summary for Pond DS 9: Planter PB-7A**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=56)

Inflow Area = 3,275 sf, 96.52% Impervious, Inflow Depth = 1.92" for 2 YR event  
 Inflow = 0.19 cfs @ 12.03 hrs, Volume= 523 cf  
 Outflow = 0.01 cfs @ 12.60 hrs, Volume= 208 cf, Atten= 96%, Lag= 34.1 min  
 Primary = 0.01 cfs @ 12.60 hrs, Volume= 1,324 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 612.85' @ 13.62 hrs Surf.Area= 391 sf Storage= 369 cf

Plug-Flow detention time= 385.7 min calculated for 208 cf (40% of inflow)  
 Center-of-Mass det. time= 252.8 min ( 1,030.5 - 777.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.49'	665 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.49	391	0.0	0	0
613.99	391	40.0	547	547
614.00	141	20.0	1	548
615.32	141	50.0	93	641
615.49	141	100.0	24	665

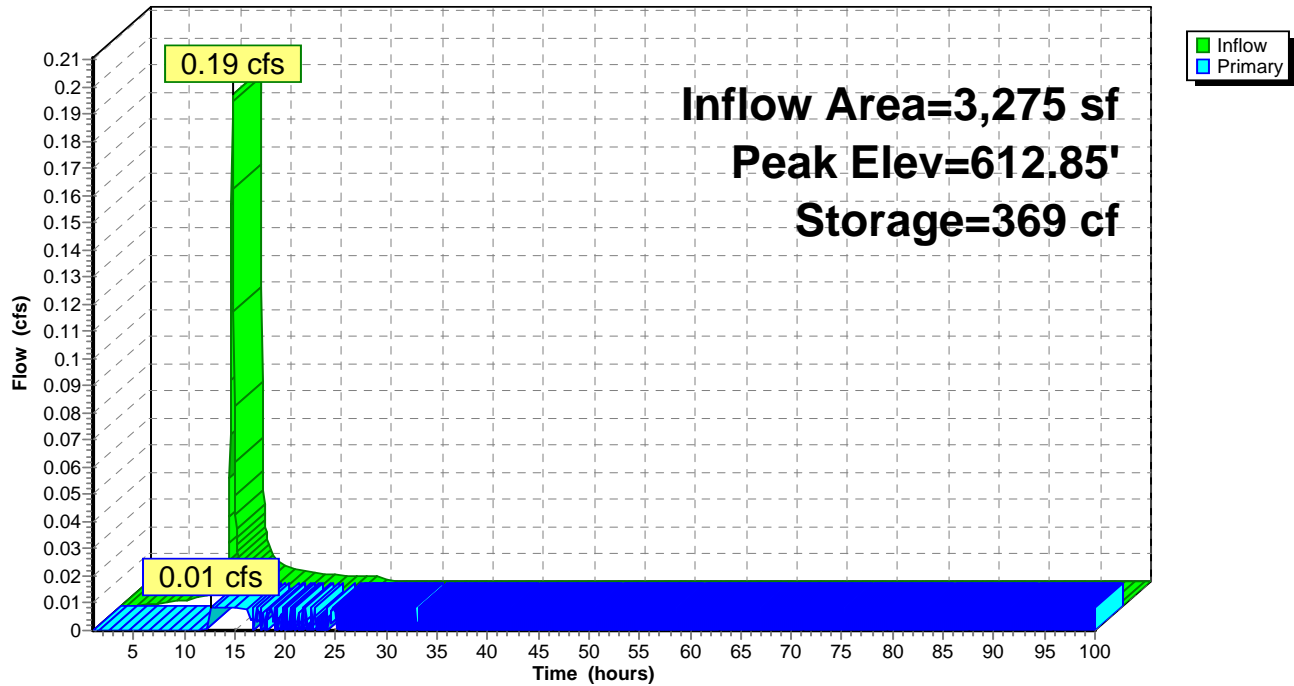
Device	Routing	Invert	Outlet Devices
#1	Primary	612.30'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.30' / 612.23' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.99'	<b>6.0" Round Culvert</b> L= 28.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.99' / 610.99' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.49'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.48'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.01 cfs @ 12.60 hrs HW=612.77' TW=612.73' (Dynamic Tailwater)

1=Culvert (Passes 0.01 cfs of 0.18 cfs potential flow)  
 2=Culvert (Passes 0.01 cfs of 0.16 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.01 cfs)  
 4=Orifice/Grate ( Controls 0.00 cfs)

Pond DS 9: Planter PB-7A

Hydrograph



### Summary for Pond DS-1: DS 1

[80] Warning: Exceeded Pond DS 15 by 2.54' @ 2.35 hrs (0.27 cfs 60,497 cf)

[80] Warning: Exceeded Pond DS 4 by 2.15' @ 2.15 hrs (0.01 cfs 249 cf)

[80] Warning: Exceeded Pond DS 5 by 2.36' @ 3.15 hrs (0.00 cfs 166 cf)

Inflow Area = 58,007 sf, 98.29% Impervious, Inflow Depth > 17.78" for 2 YR event  
 Inflow = 1.38 cfs @ 12.10 hrs, Volume= 85,970 cf  
 Outflow = 1.38 cfs @ 12.10 hrs, Volume= 85,970 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.38 cfs @ 12.10 hrs, Volume= 85,970 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.38' @ 12.10 hrs

Flood Elev= 647.22'

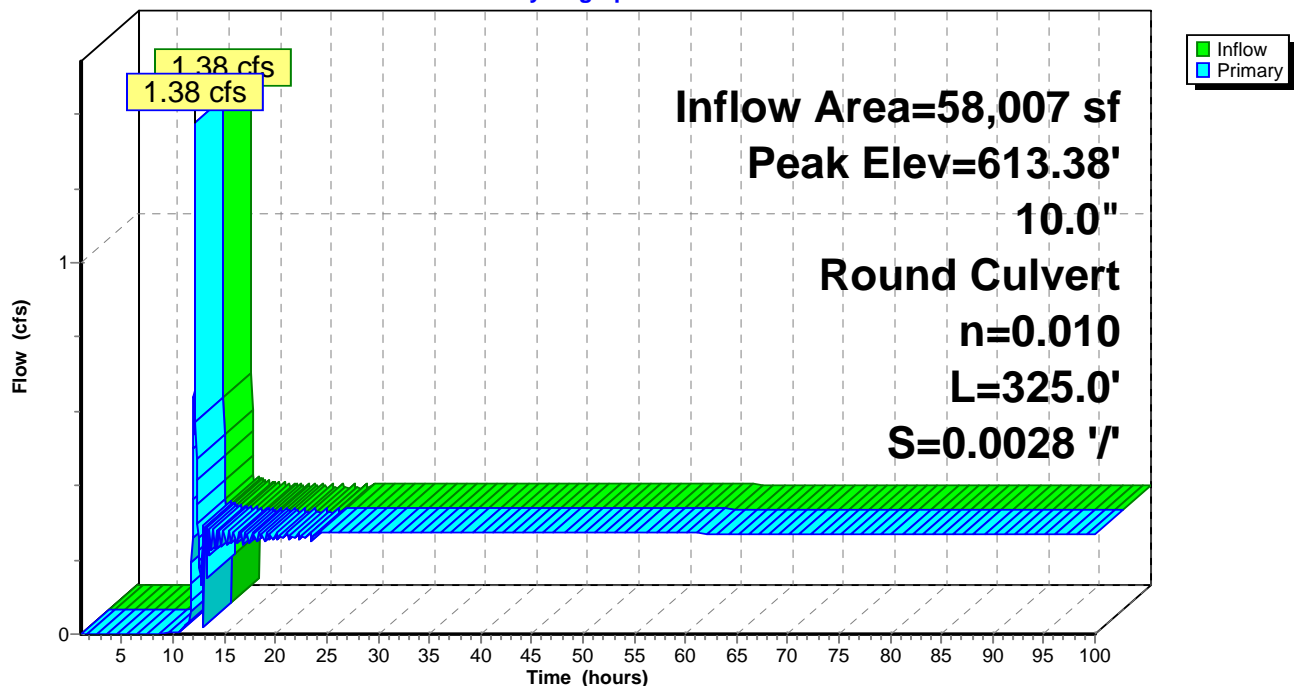
Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=1.35 cfs @ 12.10 hrs HW=613.37' TW=590.83' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 1.35 cfs @ 3.10 fps)

### Pond DS-1: DS 1

#### Hydrograph



**Summary for Pond DS8: Planter PB-6A**

Inflow Area = 1,765 sf, 96.09% Impervious, Inflow Depth = 1.92" for 2 YR event  
 Inflow = 0.10 cfs @ 12.03 hrs, Volume= 282 cf  
 Outflow = 0.00 cfs @ 15.16 hrs, Volume= 55 cf, Atten= 97%, Lag= 187.7 min  
 Primary = 0.00 cfs @ 15.16 hrs, Volume= 55 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 613.07' @ 15.16 hrs Surf.Area= 235 sf Storage= 230 cf

Plug-Flow detention time= 556.3 min calculated for 55 cf (20% of inflow)  
 Center-of-Mass det. time= 353.3 min ( 1,131.0 - 777.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.63'	399 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.63	235	0.0	0	0
614.13	235	40.0	329	329
614.14	84	20.0	0	329
615.46	84	50.0	55	385
615.63	84	100.0	14	399

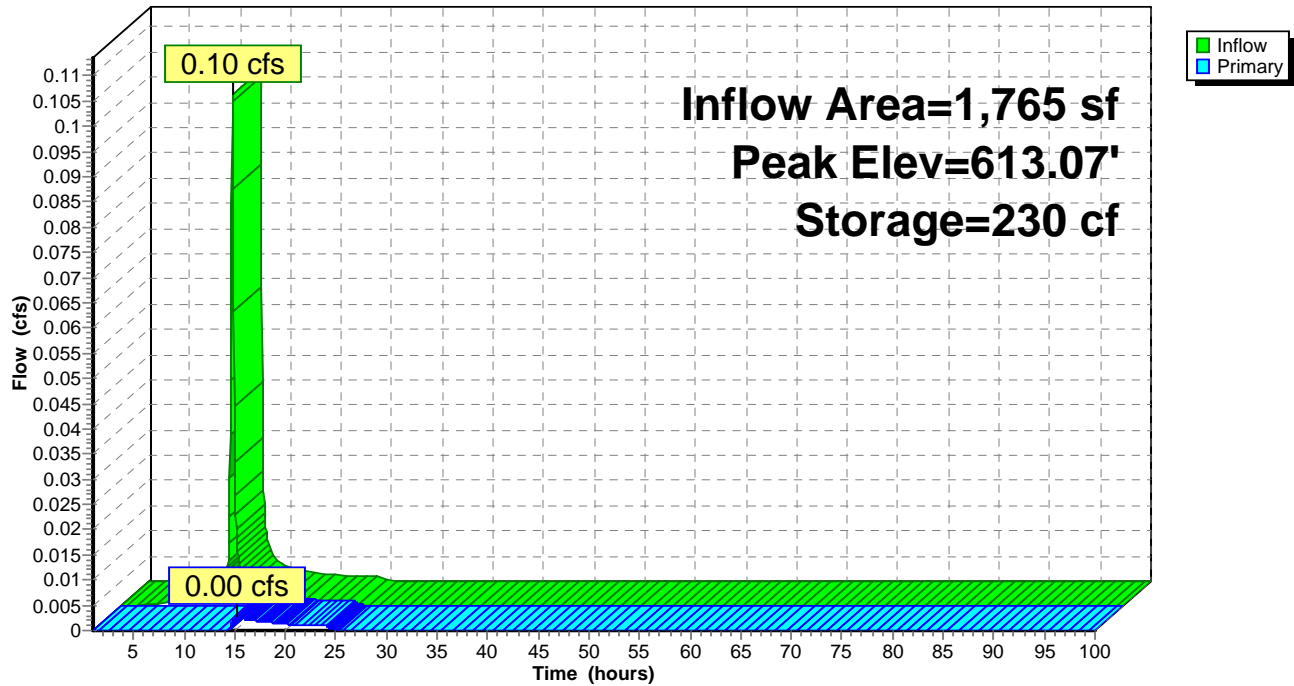
Device	Routing	Invert	Outlet Devices
#1	Primary	613.04'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.13'	<b>6.0" Round Culvert</b> L= 14.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.13' / 611.13' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.63'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.62'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 15.16 hrs HW=613.07' TW=612.67' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.00 cfs @ 0.76 fps)  
 2=Culvert (Passes 0.00 cfs of 0.17 cfs potential flow)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

Pond DS8: Planter PB-6A

Hydrograph



**Genesee St Final**

Prepared by Microsoft

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*Type II 24-hr 25 Year Rainfall=4.00"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 1: Area 1</b>	Runoff Area=5,276 sf 95.77% Impervious Runoff Depth=3.65" Tc=12.0 min CN=97 Runoff=0.56 cfs 1,605 cf
<b>Subcatchment 1M: Area 1M M and T Lot</b>	Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=3.77" Tc=15.0 min CN=98 Runoff=2.95 cfs 9,479 cf
<b>Subcatchment 2: Area 2</b>	Runoff Area=3,939 sf 92.08% Impervious Runoff Depth=3.65" Tc=12.0 min CN=97 Runoff=0.42 cfs 1,199 cf
<b>Subcatchment 2M: Area 2M M and T Two</b>	Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=3.77" Tc=12.0 min CN=98 Runoff=1.43 cfs 4,220 cf
<b>Subcatchment 3: Area 3</b>	Runoff Area=2,103 sf 92.44% Impervious Runoff Depth=3.65" Tc=12.0 min CN=97 Runoff=0.22 cfs 640 cf
<b>Subcatchment 4: Area 4</b>	Runoff Area=6,163 sf 94.95% Impervious Runoff Depth=3.65" Tc=12.0 min CN=97 Runoff=0.65 cfs 1,875 cf
<b>Subcatchment 4B: Area 4B</b>	Runoff Area=2,141 sf 100.00% Impervious Runoff Depth=3.77" Tc=12.0 min CN=98 Runoff=0.23 cfs 672 cf
<b>Subcatchment 5: Area 5</b>	Runoff Area=3,711 sf 98.14% Impervious Runoff Depth=3.77" Tc=12.0 min CN=98 Runoff=0.40 cfs 1,164 cf
<b>Subcatchment 6: Area 6</b>	Runoff Area=1,765 sf 96.09% Impervious Runoff Depth=3.65" Tc=12.0 min CN=97 Runoff=0.19 cfs 537 cf
<b>Subcatchment 7: Area 7</b>	Runoff Area=3,275 sf 96.52% Impervious Runoff Depth=3.65" Tc=12.0 min CN=97 Runoff=0.35 cfs 997 cf
<b>Subcatchment 8: Area 8</b>	Runoff Area=2,841 sf 96.16% Impervious Runoff Depth=3.65" Tc=12.0 min CN=97 Runoff=0.30 cfs 864 cf
<b>Subcatchment 9: Area 9</b>	Runoff Area=2,159 sf 94.58% Impervious Runoff Depth=3.65" Tc=12.0 min CN=97 Runoff=0.23 cfs 657 cf
<b>Subcatchment 9A: Area 9A</b>	Runoff Area=4,063 sf 100.00% Impervious Runoff Depth=3.77" Tc=12.0 min CN=98 Runoff=0.43 cfs 1,275 cf
<b>Subcatchment 9B: Area 9B</b>	Runoff Area=5,512 sf 100.00% Impervious Runoff Depth=3.77" Tc=12.0 min CN=98 Runoff=0.59 cfs 1,729 cf
<b>Subcatchment 15: Area 15</b>	Runoff Area=3,027 sf 97.49% Impervious Runoff Depth=3.77" Tc=12.0 min CN=98 Runoff=0.32 cfs 950 cf
<b>Subcatchment 15A: Area 15A</b>	Runoff Area=3,750 sf 100.00% Impervious Runoff Depth=3.77" Tc=12.0 min CN=98 Runoff=0.40 cfs 1,177 cf

**Genesee St Final**

Prepared by Microsoft

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*Type II 24-hr 25 Year Rainfall=4.00"*

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**Subcatchment 15B: Area 15B**Runoff Area=16,790 sf 100.00% Impervious Runoff Depth=3.77"  
Tc=12.0 min CN=98 Runoff=1.79 cfs 5,268 cf**Subcatchment 16: Area 16**Runoff Area=2,715 sf 98.42% Impervious Runoff Depth=3.77"  
Tc=12.0 min CN=98 Runoff=0.29 cfs 852 cf**Pond 84": 84" TRUNK SEWER**Peak Elev=591.22' Inflow=9.89 cfs 113,901 cf  
84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/' Outflow=9.89 cfs 113,901 cf**Pond DI 868: DI #868**Peak Elev=613.46' Inflow=1.52 cfs 7,663 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=1.52 cfs 7,663 cf**Pond DS 10: Planter PB-8A**Peak Elev=615.26' Storage=637 cf Inflow=0.30 cfs 864 cf  
Outflow=0.02 cfs 545 cf**Pond DS 11: Planter PB-9A**Peak Elev=613.13' Storage=471 cf Inflow=0.23 cfs 657 cf  
Outflow=0.01 cfs 289 cf**Pond DS 14: DS 14**Peak Elev=620.09' Inflow=2.09 cfs 6,096 cf  
Primary=1.10 cfs 3,648 cf Secondary=1.36 cfs 2,448 cf Outflow=2.09 cfs 6,096 cf**Pond DS 15: Planter PB-4A**Peak Elev=618.48' Storage=1,803 cf Inflow=1.10 cfs 3,648 cf  
Outflow=0.69 cfs 2,463 cf**Pond DS 2: Planter PB-1A**Peak Elev=615.58' Storage=610 cf Inflow=0.56 cfs 1,605 cf  
Outflow=0.70 cfs 1,372 cf**Pond DS 28: DS 28**Peak Elev=609.43' Inflow=1.01 cfs 2,844 cf  
12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/' Outflow=1.01 cfs 2,847 cf**Pond DS 29: Planter PB-1B**Peak Elev=614.08' Storage=224 cf Inflow=0.61 cfs 1,744 cf  
Outflow=0.61 cfs 1,668 cf**Pond DS 3: DS 3**Peak Elev=620.39' Inflow=3.36 cfs 10,677 cf  
Primary=1.03 cfs 2,747 cf Secondary=2.44 cfs 7,930 cf Outflow=3.36 cfs 10,677 cf**Pond DS 30: Planter PB-2B**Peak Elev=614.23' Storage=109 cf Inflow=0.29 cfs 852 cf  
Outflow=0.29 cfs 794 cf**Pond DS 4: Planter PB-2A**Peak Elev=619.05' Storage=1,715 cf Inflow=1.03 cfs 2,747 cf  
Outflow=1.09 cfs 1,767 cf**Pond DS 5: Planter PB-3A**Peak Elev=615.19' Storage=435 cf Inflow=0.22 cfs 640 cf  
Outflow=0.03 cfs 431 cf**Pond DS 6: DS 6**Peak Elev=614.50' Inflow=1.52 cfs 7,663 cf  
10.0" Round Culvert n=0.010 L=303.0' S=0.0028 '/' Outflow=1.52 cfs 7,663 cf**Pond DS 7: Planter PB-5A**Peak Elev=615.67' Storage=387 cf Inflow=0.40 cfs 1,164 cf  
Outflow=0.51 cfs 954 cf**Pond DS 9: Planter PB-7A**Peak Elev=615.50' Storage=665 cf Inflow=0.35 cfs 997 cf  
Outflow=0.08 cfs 674 cf

**Genesee St Final***Type II 24-hr 25 Year Rainfall=4.00"*

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**Pond DS-1: DS 1**

Peak Elev=617.33' Inflow=3.21 cfs 88,821 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=3.21 cfs 88,821 cf

**Pond DS8: Planter PB-6A**

Peak Elev=615.62' Storage=399 cf Inflow=0.19 cfs 537 cf  
Outflow=0.01 cfs 311 cf

**Total Runoff Area = 112,891 sf Runoff Volume = 35,160 cf Average Runoff Depth = 3.74"**  
**1.61% Pervious = 1,812 sf 98.39% Impervious = 111,079 sf**



**Summary for Subcatchment 1: Area 1**

Runoff = 0.56 cfs @ 12.03 hrs, Volume= 1,605 cf, Depth= 3.65"

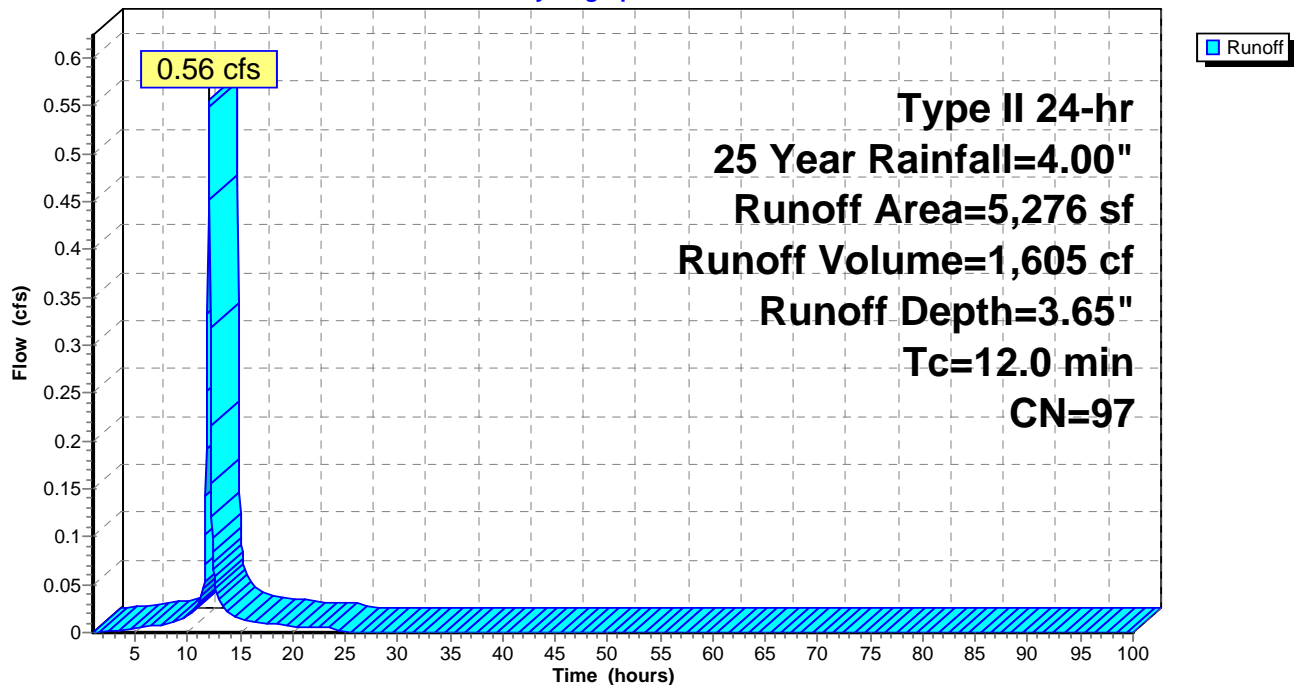
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
223	80	>75% Grass cover, Good, HSG D
5,053	98	Paved parking, HSG D
5,276	97	Weighted Average
223		4.23% Pervious Area
5,053		95.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 1: Area 1**

Hydrograph



**Summary for Subcatchment 1M: Area 1M M and T Lot one**

Runoff = 2.95 cfs @ 12.06 hrs, Volume= 9,479 cf, Depth= 3.77"

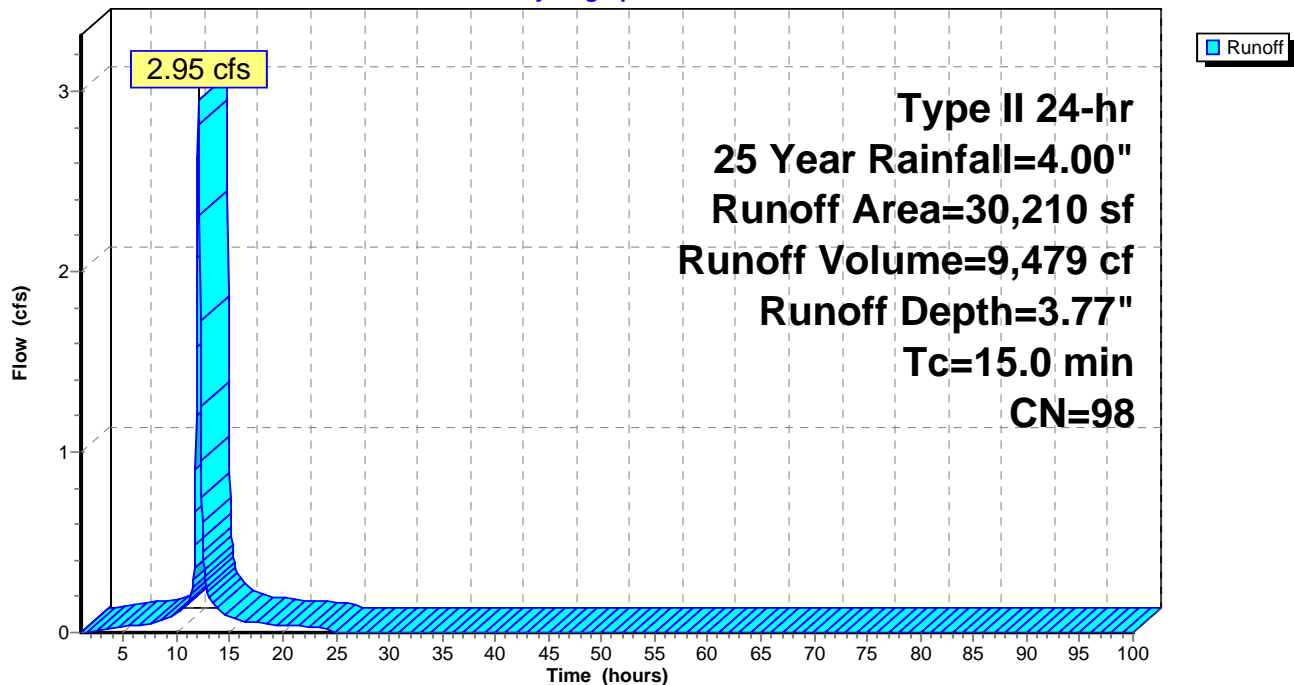
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
210	80	>75% Grass cover, Good, HSG D
30,000	98	Paved parking, HSG D
30,210	98	Weighted Average
210		0.70% Pervious Area
30,000		99.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					Direct Entry,

**Subcatchment 1M: Area 1M M and T Lot one**

Hydrograph



**Summary for Subcatchment 2: Area 2**

Runoff = 0.42 cfs @ 12.03 hrs, Volume= 1,199 cf, Depth= 3.65"

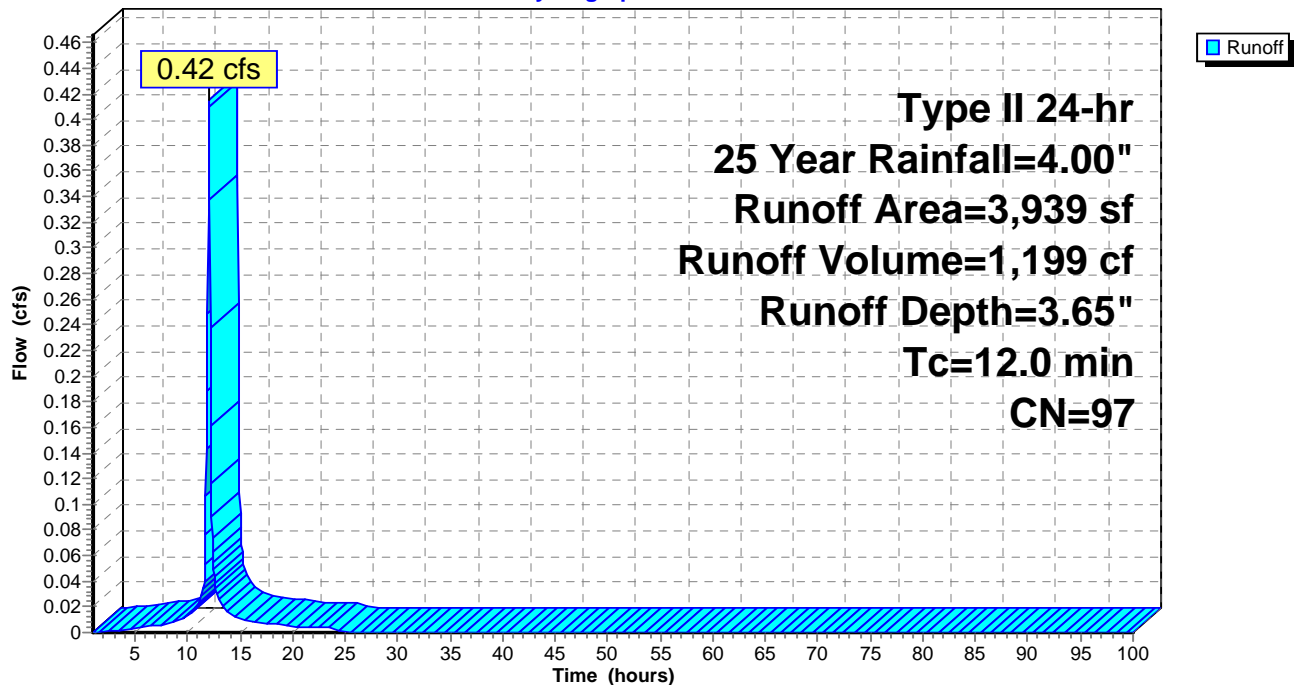
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
312	80	>75% Grass cover, Good, HSG D
3,627	98	Paved parking, HSG D
3,939	97	Weighted Average
312		7.92% Pervious Area
3,627		92.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 2: Area 2**

Hydrograph



**Summary for Subcatchment 2M: Area 2M M and T Two**

Runoff = 1.43 cfs @ 12.03 hrs, Volume= 4,220 cf, Depth= 3.77"

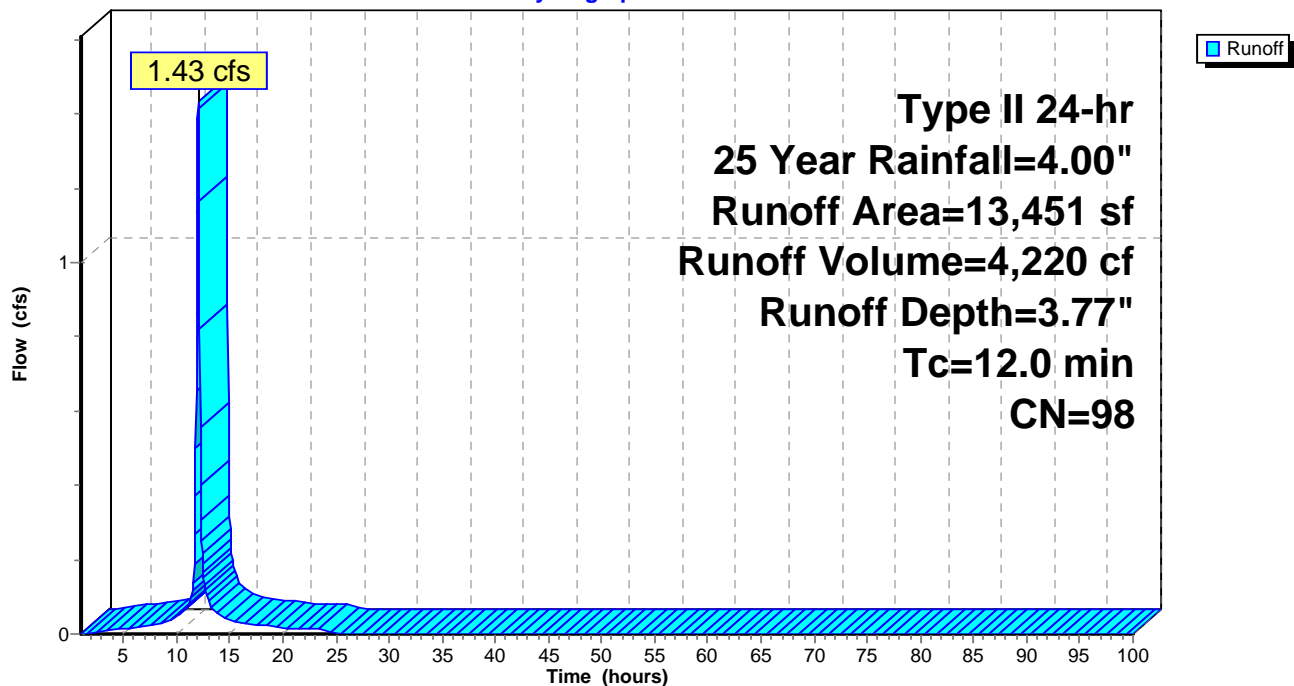
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
13,451	98	Paved parking, HSG D
13,451		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 2M: Area 2M M and T Two**

Hydrograph



**Summary for Subcatchment 3: Area 3**

Runoff = 0.22 cfs @ 12.03 hrs, Volume= 640 cf, Depth= 3.65"

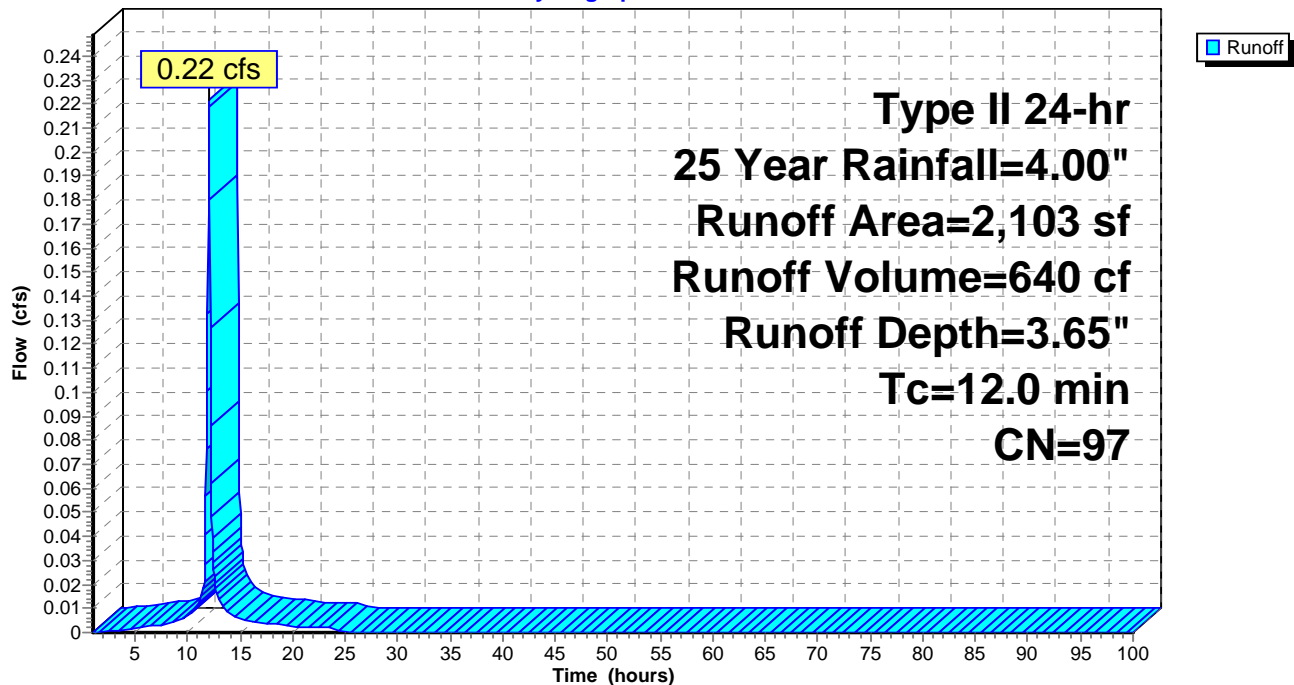
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
159	80	>75% Grass cover, Good, HSG D
1,944	98	Paved parking, HSG D
2,103	97	Weighted Average
159		7.56% Pervious Area
1,944		92.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 3: Area 3**

Hydrograph



**Summary for Subcatchment 4: Area 4**

Runoff = 0.65 cfs @ 12.03 hrs, Volume= 1,875 cf, Depth= 3.65"

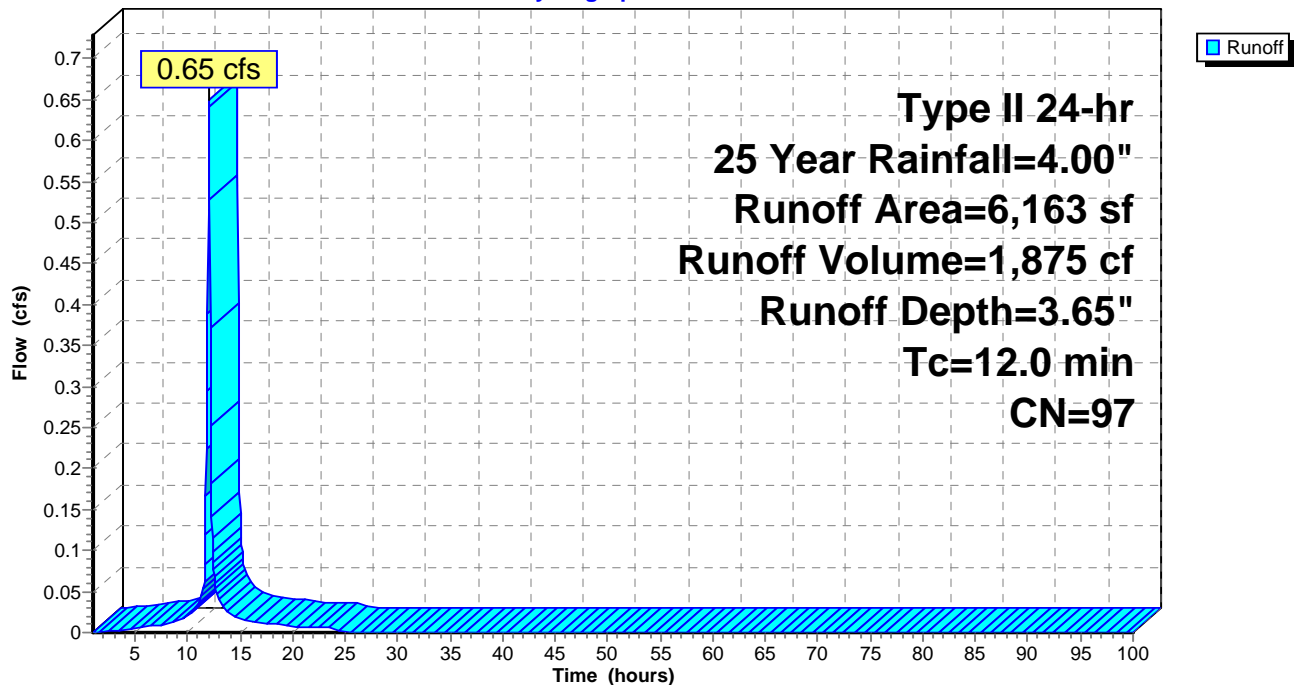
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
311	80	>75% Grass cover, Good, HSG D
5,852	98	Paved parking, HSG D
6,163	97	Weighted Average
311		5.05% Pervious Area
5,852		94.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 4: Area 4**

Hydrograph



**Summary for Subcatchment 4B: Area 4B**

Runoff = 0.23 cfs @ 12.03 hrs, Volume= 672 cf, Depth= 3.77"

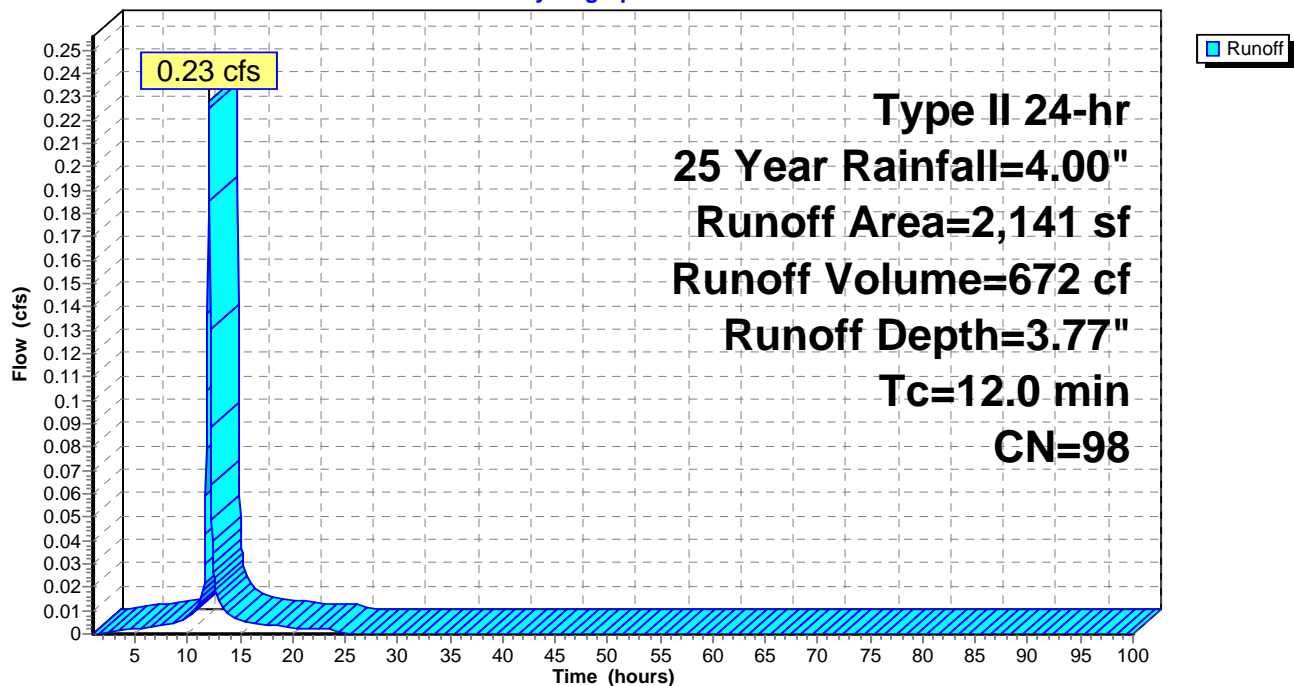
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
2,141	98	Paved parking, HSG D
2,141		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 4B: Area 4B**

Hydrograph



**Summary for Subcatchment 5: Area 5**

Runoff = 0.40 cfs @ 12.03 hrs, Volume= 1,164 cf, Depth= 3.77"

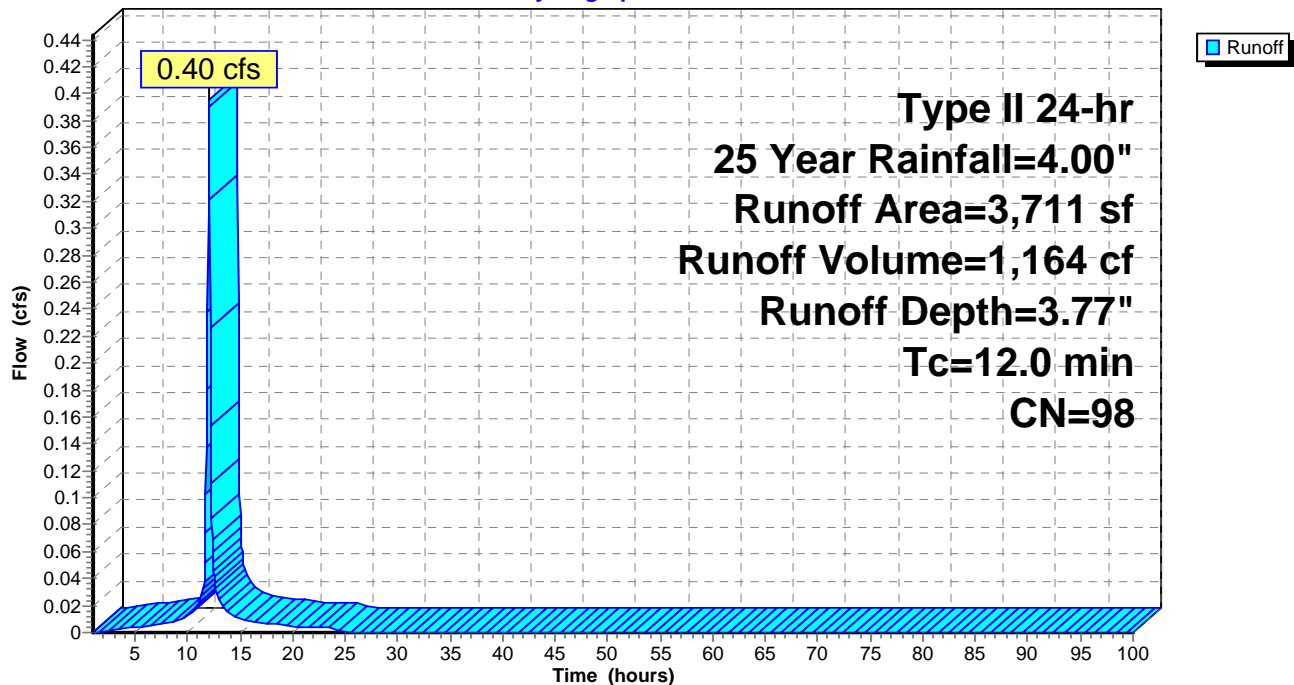
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
69	80	>75% Grass cover, Good, HSG D
3,642	98	Paved parking, HSG D
3,711	98	Weighted Average
69		1.86% Pervious Area
3,642		98.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 5: Area 5**

Hydrograph





**Summary for Subcatchment 6: Area 6**

Runoff = 0.19 cfs @ 12.03 hrs, Volume= 537 cf, Depth= 3.65"

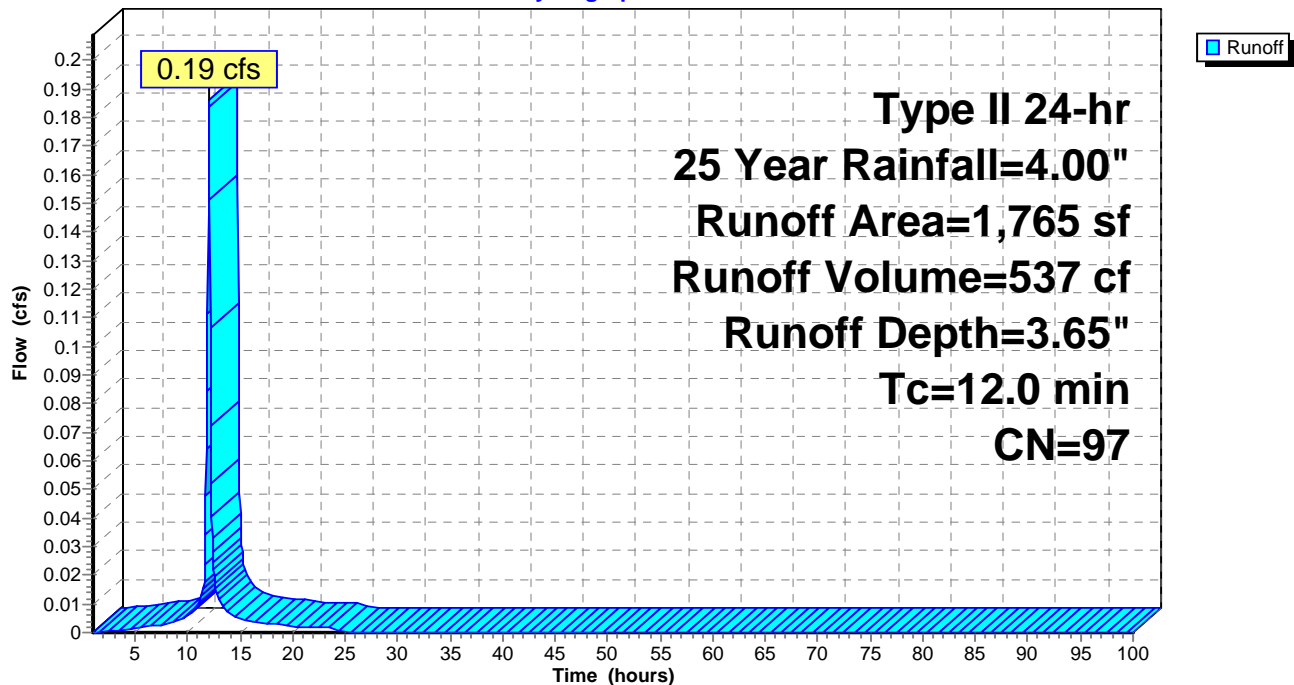
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
69	80	>75% Grass cover, Good, HSG D
1,696	98	Paved parking, HSG D
1,765	97	Weighted Average
69		3.91% Pervious Area
1,696		96.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 6: Area 6**

Hydrograph



**Summary for Subcatchment 7: Area 7**

Runoff = 0.35 cfs @ 12.03 hrs, Volume= 997 cf, Depth= 3.65"

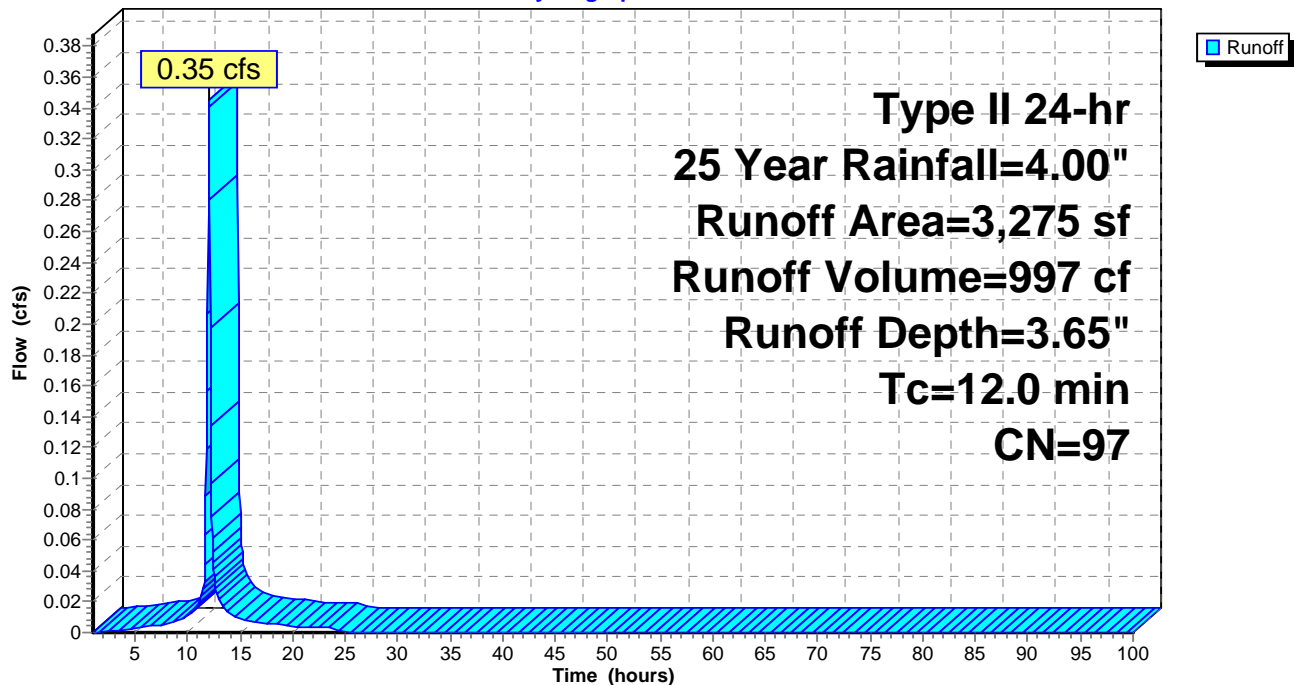
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
114	80	>75% Grass cover, Good, HSG D
3,161	98	Paved parking, HSG D
3,275	97	Weighted Average
114		3.48% Pervious Area
3,161		96.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 7: Area 7**

Hydrograph



**Summary for Subcatchment 8: Area 8**

Runoff = 0.30 cfs @ 12.03 hrs, Volume= 864 cf, Depth= 3.65"

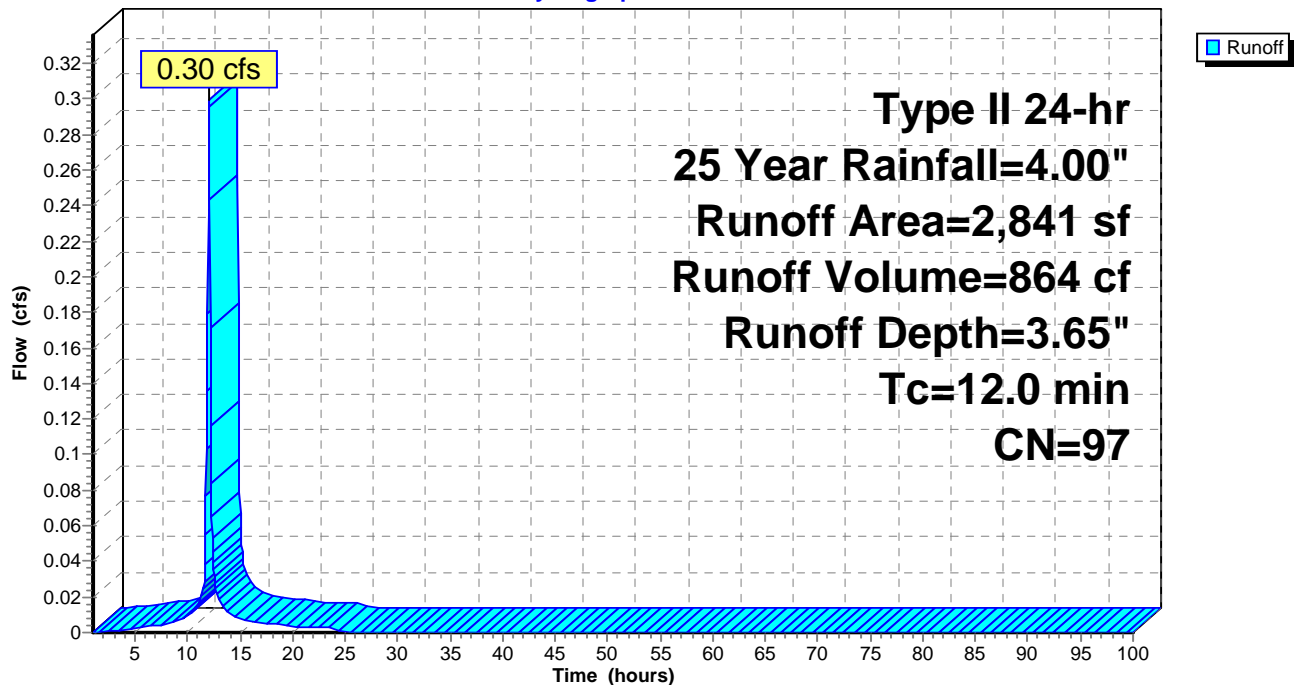
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
109	80	>75% Grass cover, Good, HSG D
2,732	98	Paved parking, HSG D
2,841	97	Weighted Average
109		3.84% Pervious Area
2,732		96.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 8: Area 8**

Hydrograph



**Summary for Subcatchment 9: Area 9**

Runoff = 0.23 cfs @ 12.03 hrs, Volume= 657 cf, Depth= 3.65"

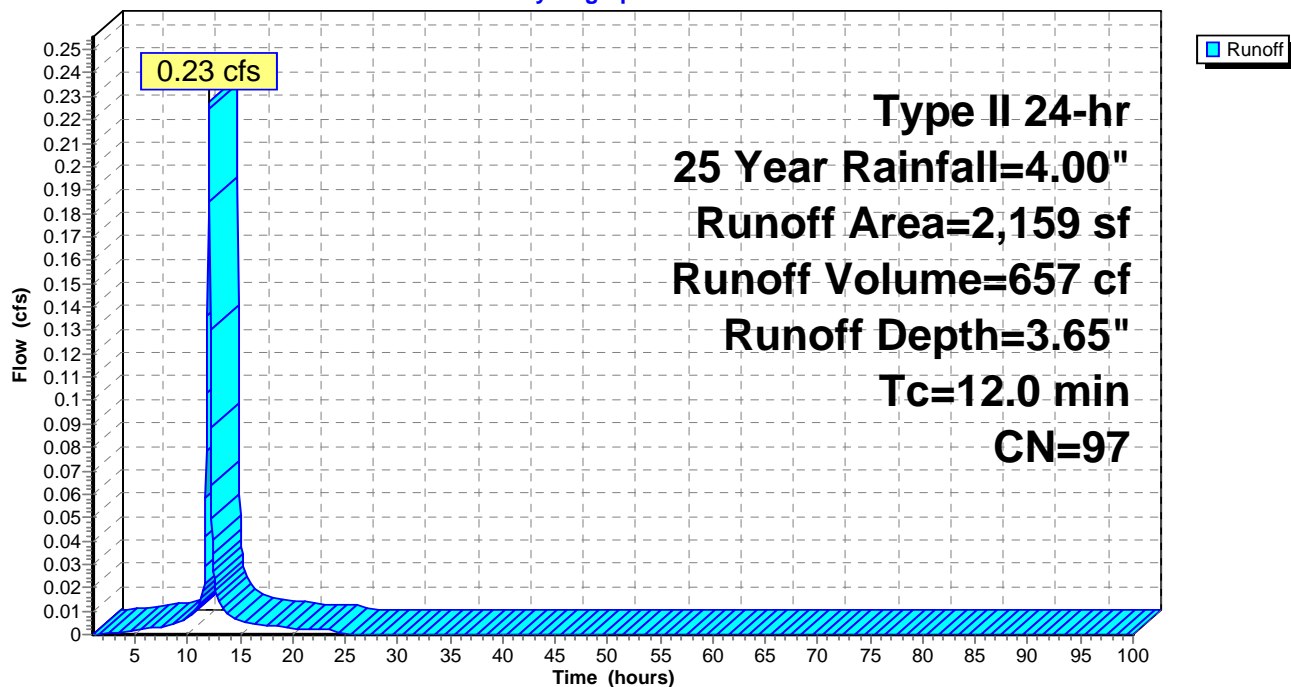
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
117	80	>75% Grass cover, Good, HSG D
2,042	98	Paved parking, HSG D
2,159	97	Weighted Average
117		5.42% Pervious Area
2,042		94.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9: Area 9**

Hydrograph



**Summary for Subcatchment 9A: Area 9A**

Runoff = 0.43 cfs @ 12.03 hrs, Volume= 1,275 cf, Depth= 3.77"

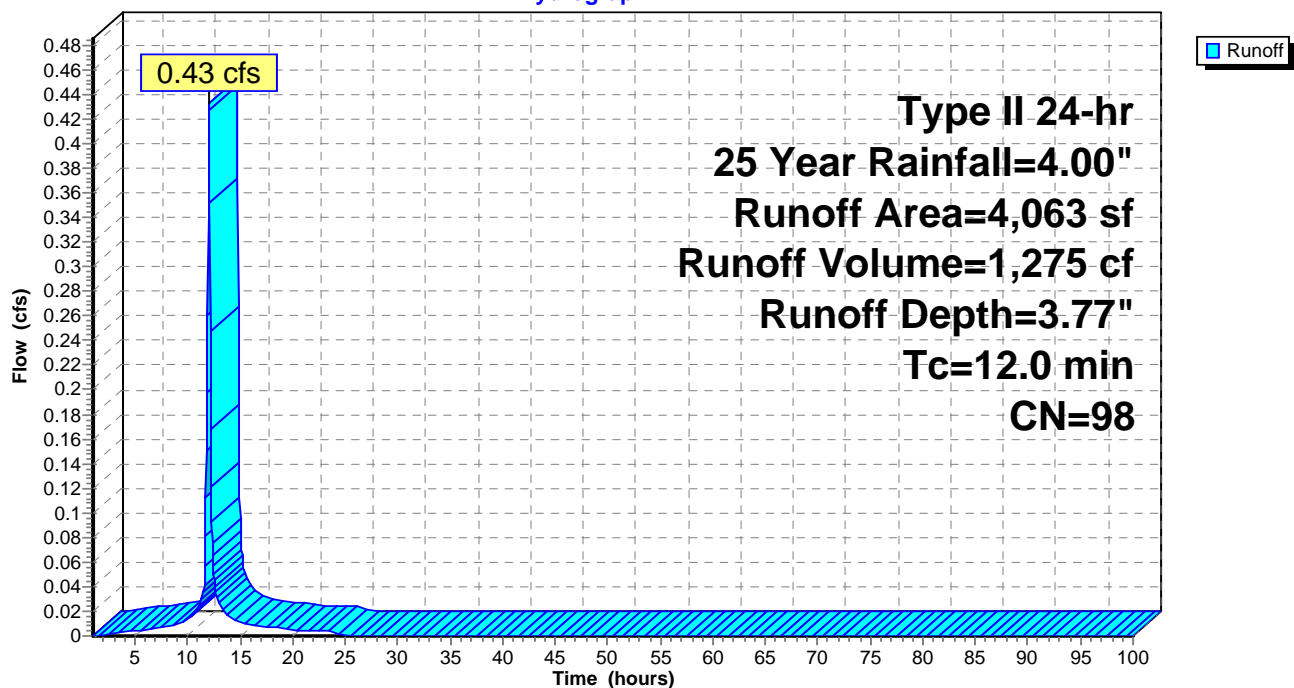
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
4,063	98	Paved parking, HSG D
4,063		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9A: Area 9A**

Hydrograph



**Summary for Subcatchment 9B: Area 9B**

Runoff = 0.59 cfs @ 12.03 hrs, Volume= 1,729 cf, Depth= 3.77"

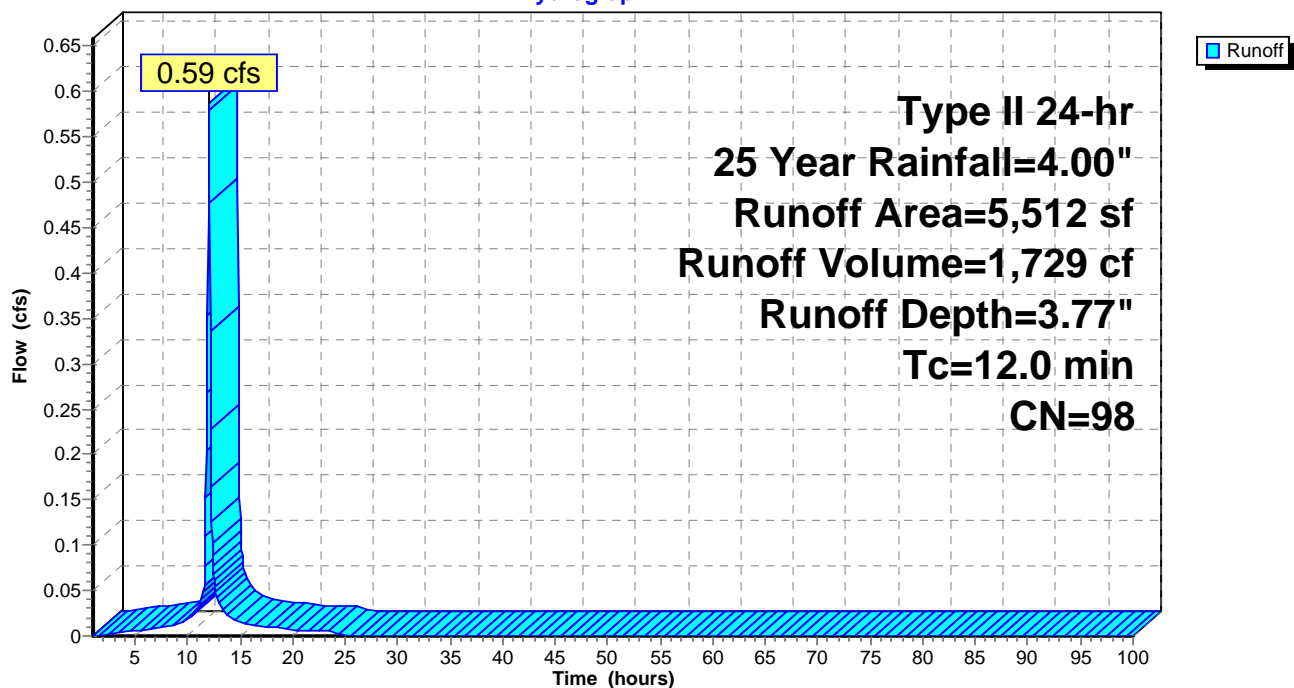
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
5,512	98	Paved parking, HSG D
5,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9B: Area 9B**

Hydrograph



**Summary for Subcatchment 15: Area 15**

Runoff = 0.32 cfs @ 12.03 hrs, Volume= 950 cf, Depth= 3.77"

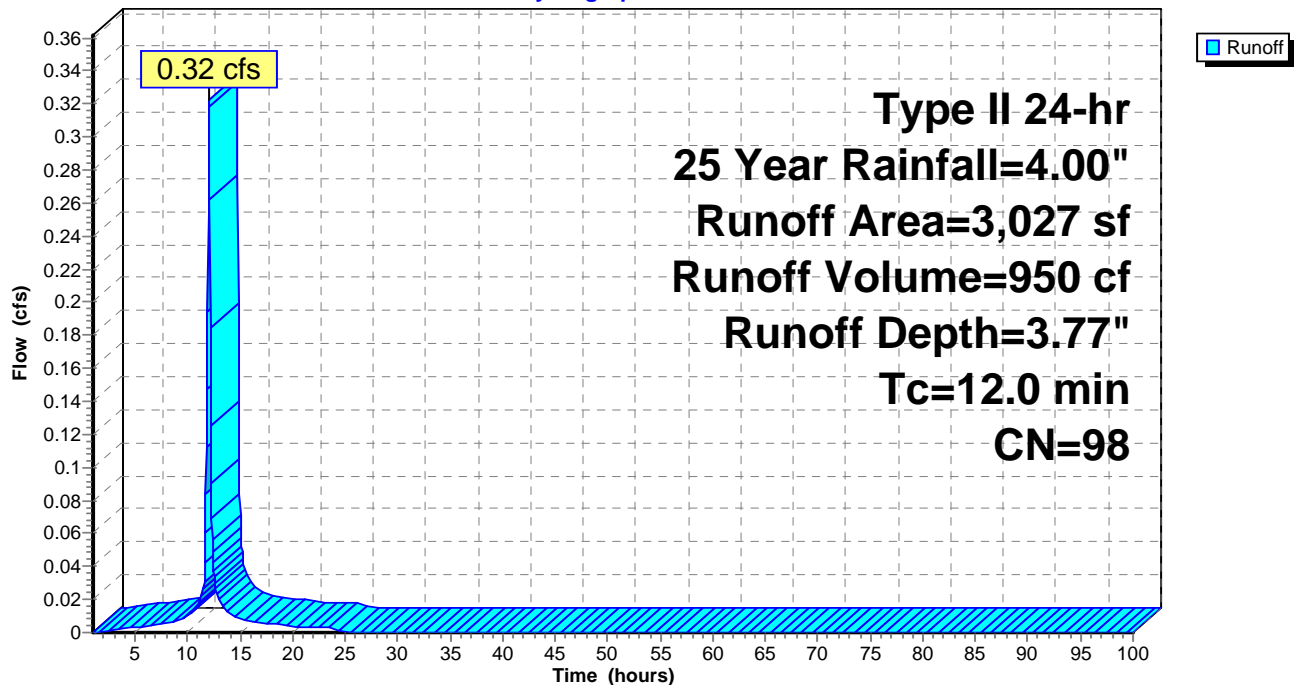
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
76	80	>75% Grass cover, Good, HSG D
2,951	98	Paved parking, HSG D
3,027	98	Weighted Average
76		2.51% Pervious Area
2,951		97.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 15: Area 15**

Hydrograph



**Genesee St Final**

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Type II 24-hr 25 Year Rainfall=4.00"

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**Summary for Subcatchment 15A: Area 15A**

Runoff = 0.40 cfs @ 12.03 hrs, Volume= 1,177 cf, Depth= 3.77"

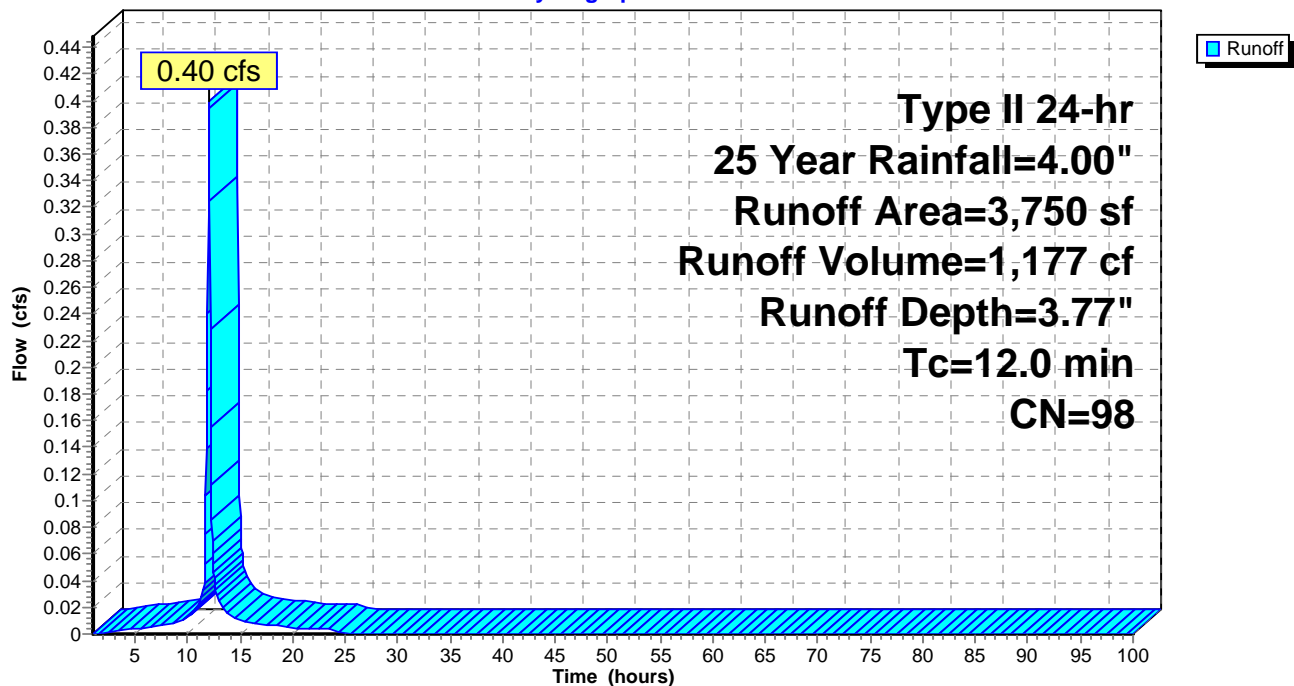
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
3,750	98	Paved parking, HSG D
3,750		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 15A: Area 15A**

Hydrograph





**Summary for Subcatchment 15B: Area 15B**

Runoff = 1.79 cfs @ 12.03 hrs, Volume= 5,268 cf, Depth= 3.77"

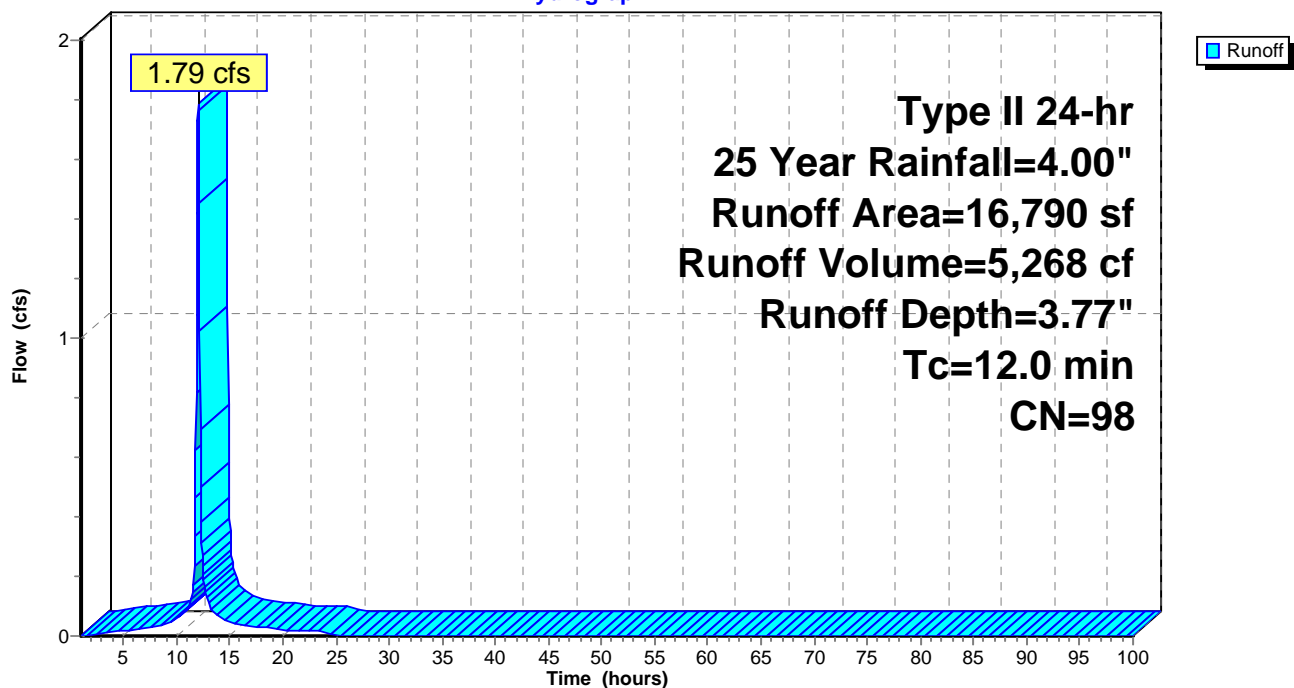
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
16,790	98	Paved parking, HSG D
16,790		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 15B: Area 15B**

Hydrograph



**Summary for Subcatchment 16: Area 16**

Runoff = 0.29 cfs @ 12.03 hrs, Volume= 852 cf, Depth= 3.77"

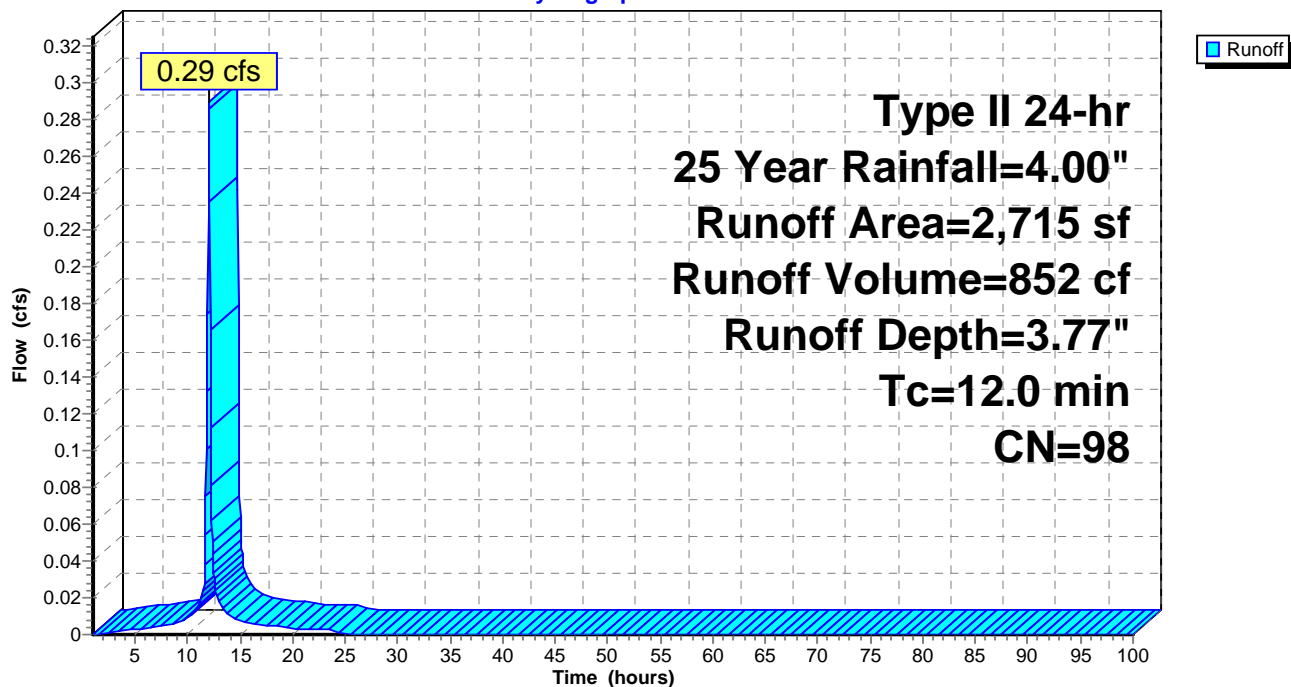
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
43	80	>75% Grass cover, Good, HSG D
2,672	98	Paved parking, HSG D
2,715	98	Weighted Average
43		1.58% Pervious Area
2,672		98.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 16: Area 16**

Hydrograph



**Summary for Pond 84": 84" TRUNK SEWER**

Inflow Area = 112,891 sf, 98.39% Impervious, Inflow Depth > 12.11" for 25 Year event  
 Inflow = 9.89 cfs @ 12.06 hrs, Volume= 113,901 cf  
 Outflow = 9.89 cfs @ 12.06 hrs, Volume= 113,901 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 9.89 cfs @ 12.06 hrs, Volume= 113,901 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 591.22' @ 12.06 hrs

Flood Elev= 647.22'

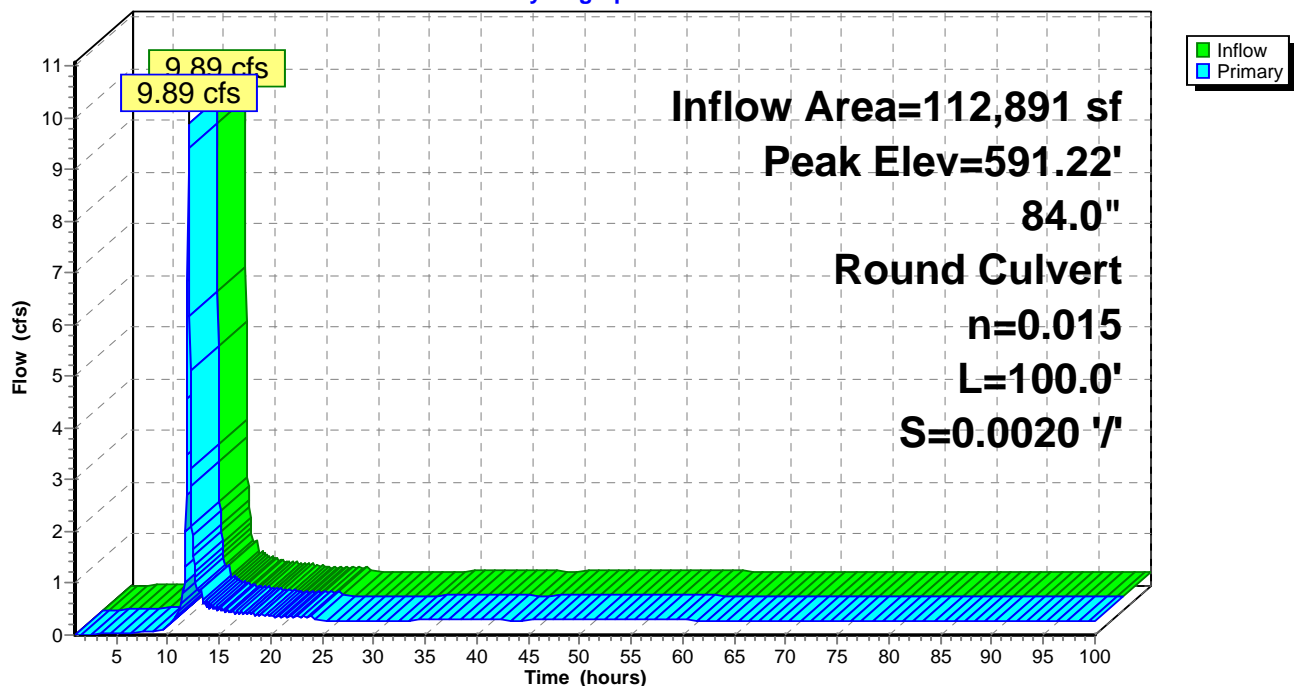
Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	<b>84.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 38.48 sf

**Primary OutFlow** Max=9.81 cfs @ 12.06 hrs HW=591.21' (Free Discharge)

↑**1=Culvert** (Barrel Controls 9.81 cfs @ 3.34 fps)

**Pond 84": 84" TRUNK SEWER**

Hydrograph



**Summary for Pond DI 868: DI #868**

[80] Warning: Exceeded Pond DS 6 by 0.27' @ 1.00 hrs (0.10 cfs 1,040 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth > 3.94" for 25 Year event  
 Inflow = 1.52 cfs @ 12.04 hrs, Volume= 7,663 cf  
 Outflow = 1.52 cfs @ 12.04 hrs, Volume= 7,663 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.52 cfs @ 12.04 hrs, Volume= 7,663 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

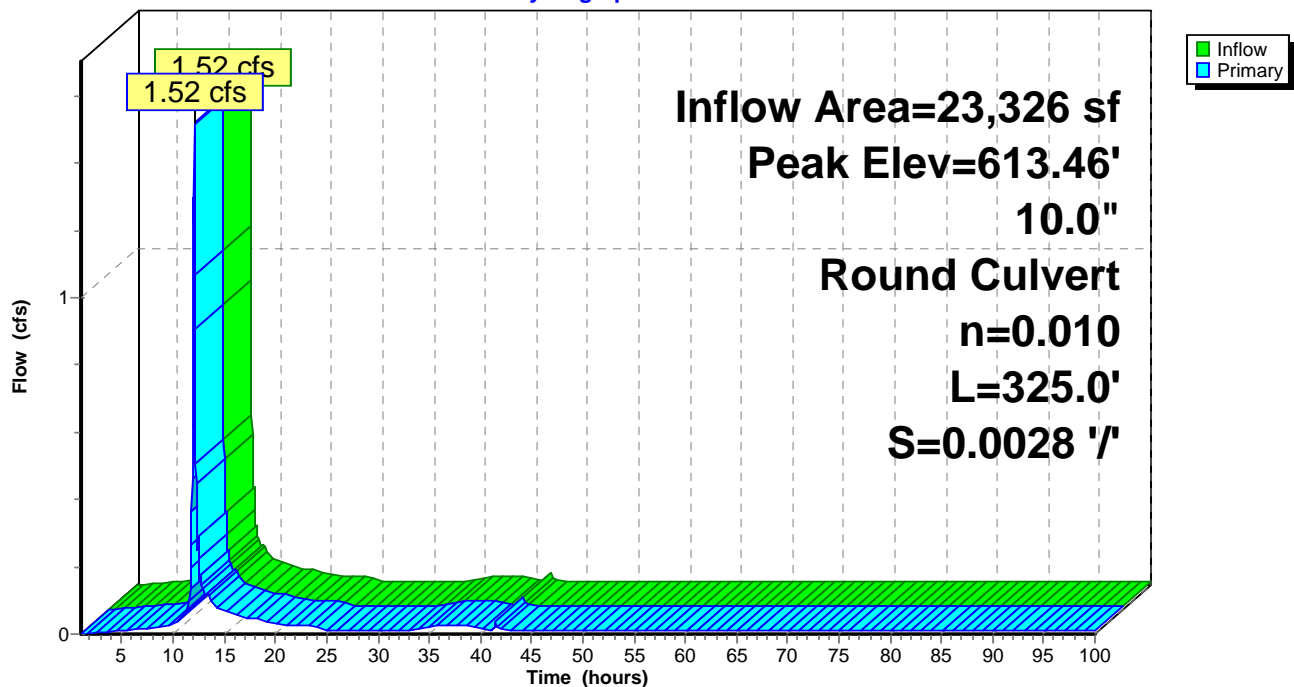
Peak Elev= 613.46' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=1.49 cfs @ 12.04 hrs HW=613.44' TW=591.21' (Dynamic Tailwater)

1=Culvert (Barrel Controls 1.49 cfs @ 3.14 fps)

**Pond DI 868: DI #868****Hydrograph**

**Summary for Pond DS 10: Planter PB-8A**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=21)

Inflow Area = 2,841 sf, 96.16% Impervious, Inflow Depth = 3.65" for 25 Year event  
 Inflow = 0.30 cfs @ 12.03 hrs, Volume= 864 cf  
 Outflow = 0.02 cfs @ 13.26 hrs, Volume= 545 cf, Atten= 94%, Lag= 73.9 min  
 Primary = 0.02 cfs @ 13.26 hrs, Volume= 1,486 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 615.26' @ 13.26 hrs Surf.Area= 141 sf Storage= 637 cf

Plug-Flow detention time= 958.7 min calculated for 545 cf (63% of inflow)  
 Center-of-Mass det. time= 854.7 min ( 1,617.1 - 762.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.43'	638 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.43	391	0.0	0	0
613.75	391	40.0	519	519
613.76	141	20.0	1	520
615.09	141	50.0	94	614
615.26	141	100.0	24	638

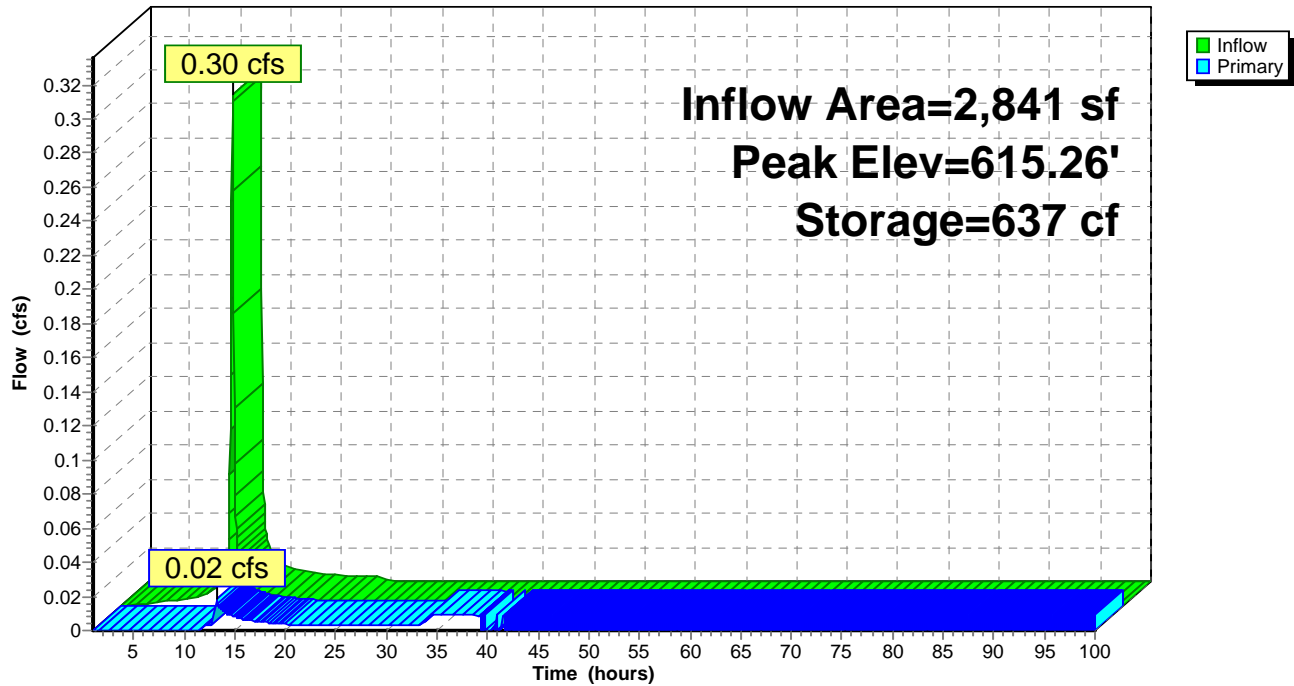
Device	Routing	Invert	Outlet Devices
#1	Primary	611.95'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.95' / 611.88' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.76'	<b>6.0" Round Culvert</b> L= 28.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.76' / 610.76' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.43'	<b>1.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.25'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.02 cfs @ 13.26 hrs HW=615.26' TW=612.78' (Dynamic Tailwater)

- 1=Culvert (Passes 0.02 cfs of 1.49 cfs potential flow)
- 2=Culvert (Passes 0.00 cfs of 1.48 cfs potential flow)
- 3=Exfiltration (Exfiltration Controls 0.00 cfs)
- 4=Orifice/Grate (Weir Controls 0.01 cfs @ 0.26 fps)

## Pond DS 10: Planter PB-8A

Hydrograph



**Summary for Pond DS 11: Planter PB-9A**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=69)

Inflow Area = 2,159 sf, 94.58% Impervious, Inflow Depth = 3.65" for 25 Year event  
 Inflow = 0.23 cfs @ 12.03 hrs, Volume= 657 cf  
 Outflow = 0.01 cfs @ 12.40 hrs, Volume= 289 cf, Atten= 96%, Lag= 22.2 min  
 Primary = 0.01 cfs @ 12.40 hrs, Volume= 1,234 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 613.13' @ 13.76 hrs Surf.Area= 391 sf Storage= 471 cf

Plug-Flow detention time= 483.0 min calculated for 289 cf (44% of inflow)  
 Center-of-Mass det. time= 349.1 min ( 1,111.5 - 762.4 )

Volume	Invert	Avail.Storage	Storage Description	
#1	610.12'	664 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.12	391	0.0	0	0
613.61	391	40.0	546	546
613.62	141	20.0	1	546
614.95	141	50.0	94	640
615.12	141	100.0	24	664

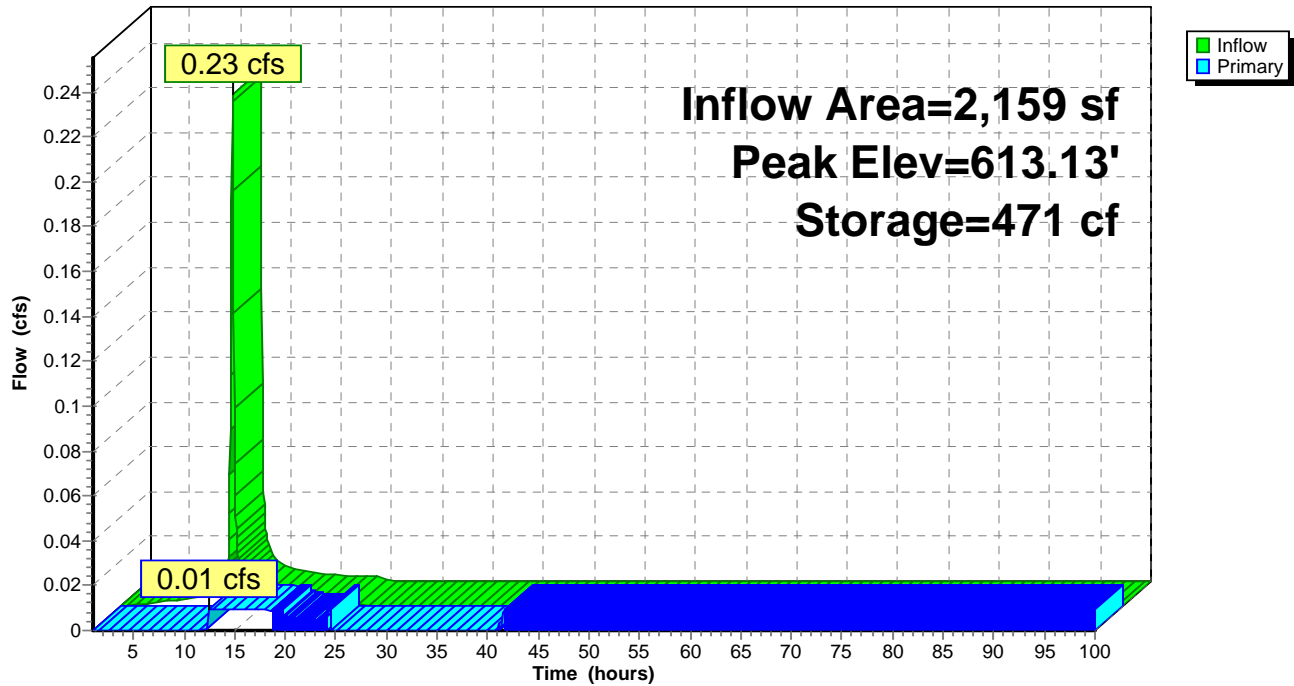
Device	Routing	Invert	Outlet Devices
#1	Primary	611.91'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.91' / 611.84' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.62'	<b>6.0" Round Culvert</b> L= 27.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.62' / 610.62' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.12'	<b>1.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.11'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.01 cfs @ 12.40 hrs HW=612.94' TW=612.89' (Dynamic Tailwater)

- 1=Culvert (Passes 0.01 cfs of 0.20 cfs potential flow)
- 2=Culvert (Passes 0.01 cfs of 0.20 cfs potential flow)
- 3=Exfiltration (Exfiltration Controls 0.01 cfs)
- 4=Orifice/Grate ( Controls 0.00 cfs)

**Pond DS 11: Planter PB-9A**

Hydrograph





**Summary for Pond DS 14: DS 14**

Inflow Area = 19,614 sf, 98.41% Impervious, Inflow Depth = 3.73" for 25 Year event  
 Inflow = 2.09 cfs @ 12.03 hrs, Volume= 6,096 cf  
 Outflow = 2.09 cfs @ 12.03 hrs, Volume= 6,096 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.10 cfs @ 12.00 hrs, Volume= 3,648 cf  
 Secondary = 1.36 cfs @ 12.07 hrs, Volume= 2,448 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 620.09' @ 12.08 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.80'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.80' / 612.75' S= 0.0125 ' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	612.90'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.90' / 612.83' S= 0.0117 ' / Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

**Primary OutFlow** Max=1.12 cfs @ 12.00 hrs HW=615.85' TW=614.46' (Dynamic Tailwater)

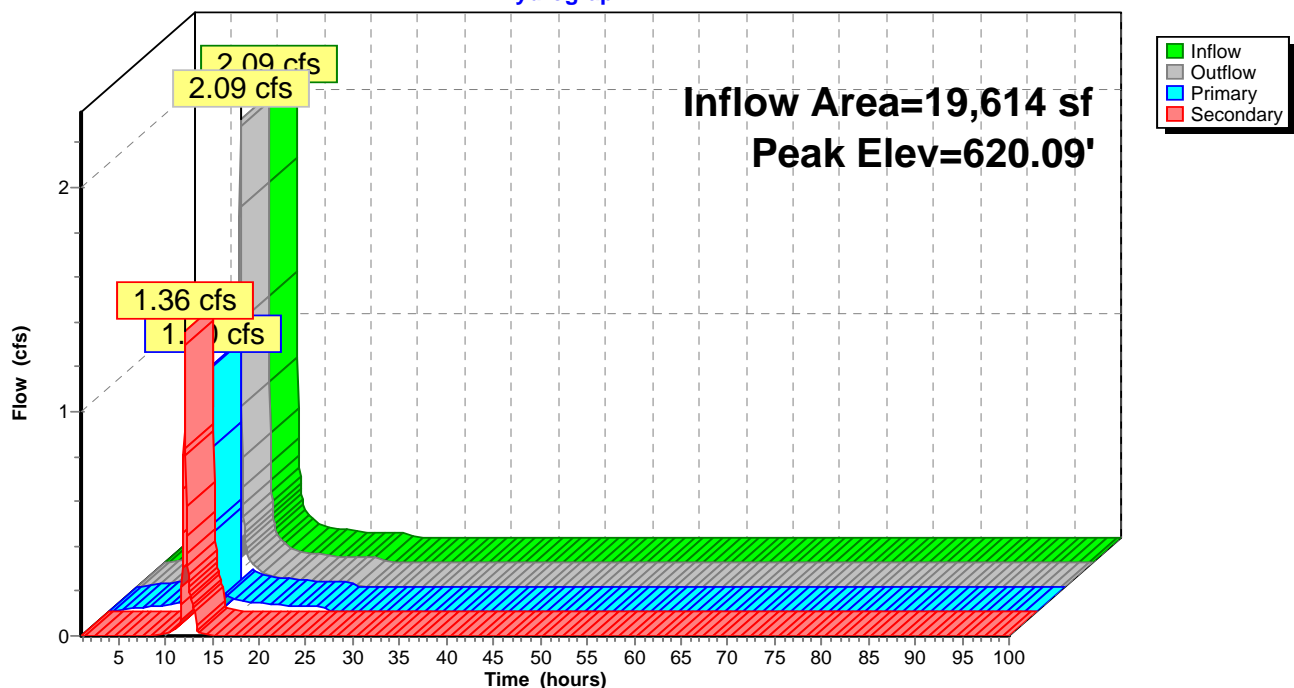
↑**1=Culvert** (Inlet Controls 1.12 cfs @ 5.68 fps)

**Secondary OutFlow** Max=1.54 cfs @ 12.07 hrs HW=619.39' TW=616.74' (Dynamic Tailwater)

↑**2=Culvert** (Inlet Controls 1.54 cfs @ 7.83 fps)

**Pond DS 14: DS 14**

Hydrograph



**Summary for Pond DS 15: Planter PB-4A**

[93] Warning: Storage range exceeded by 3.48'

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=29)

[80] Warning: Exceeded Pond DS 14 by 1.48' @ 12.35 hrs (1.15 cfs 3,210 cf)

Inflow Area = 19,614 sf, 98.41% Impervious, Inflow Depth = 2.23" for 25 Year event  
 Inflow = 1.10 cfs @ 12.00 hrs, Volume= 3,648 cf  
 Outflow = 0.69 cfs @ 12.09 hrs, Volume= 2,463 cf, Atten= 37%, Lag= 5.6 min  
 Primary = 0.69 cfs @ 12.09 hrs, Volume= 83,502 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 618.48' @ 12.09 hrs Surf.Area= 394 sf Storage= 1,803 cf

Plug-Flow detention time= 293.0 min calculated for 2,462 cf (67% of inflow)  
 Center-of-Mass det. time= 143.4 min ( 915.3 - 771.9 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.00'	1,803 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.00	1,055	0.0	0	0
613.49	1,055	40.0	1,473	1,473
613.50	394	20.0	1	1,474
614.83	394	50.0	262	1,736
615.00	394	100.0	67	1,803

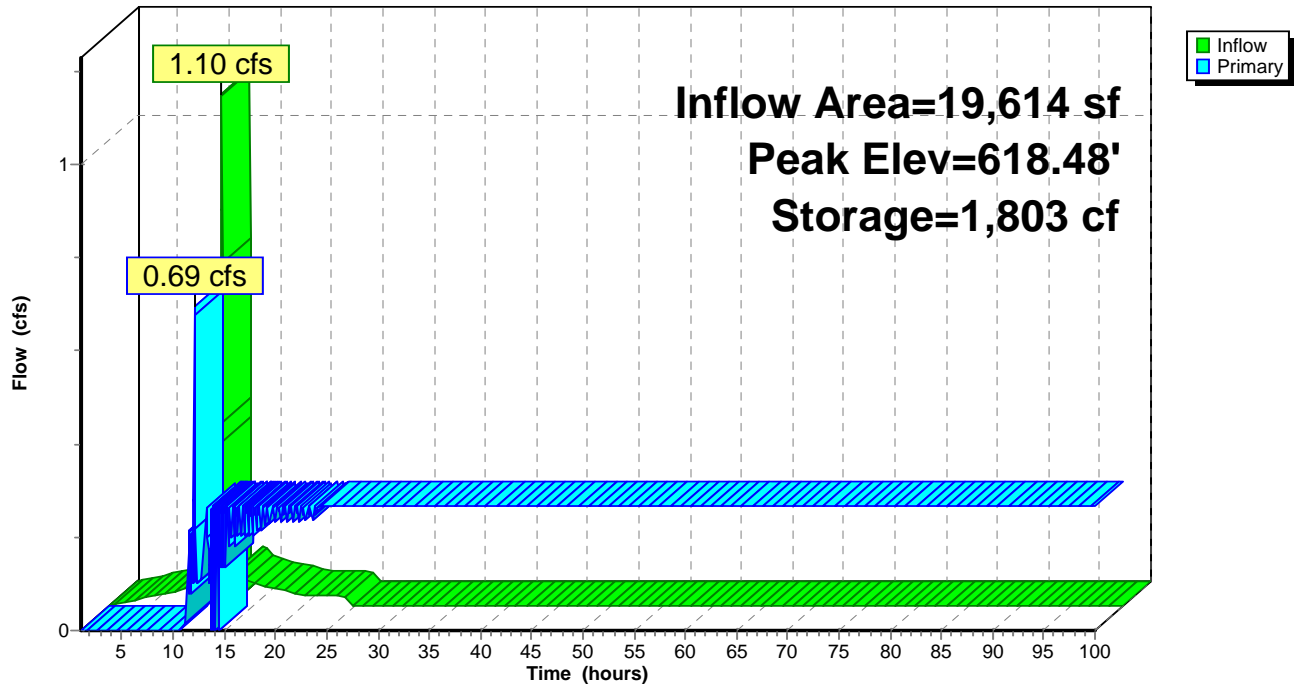
Device	Routing	Invert	Outlet Devices
#1	Primary	611.93'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.93' / 611.86' S= 0.0117 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.50'	<b>6.0" Round Culvert</b> L= 61.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.50' / 610.50' S= 0.0000 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.00'	<b>11.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.99'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=1.00 cfs @ 12.09 hrs HW=618.11' TW=617.00' (Dynamic Tailwater)

1=Culvert (Inlet Controls 1.00 cfs @ 5.08 fps)  
 2=Culvert (Passes < 0.80 cfs potential flow)  
 3=Exfiltration (Passes < 0.10 cfs potential flow)  
 4=Orifice/Grate (Passes < 20.31 cfs potential flow)

**Pond DS 15: Planter PB-4A**

Hydrograph



**Summary for Pond DS 2: Planter PB-1A**

[93] Warning: Storage range exceeded by 0.08'

[90] Warning: Qout&gt;Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=10)

Inflow Area = 5,276 sf, 95.77% Impervious, Inflow Depth = 3.65" for 25 Year event  
 Inflow = 0.56 cfs @ 12.03 hrs, Volume= 1,605 cf  
 Outflow = 0.70 cfs @ 12.01 hrs, Volume= 1,372 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.70 cfs @ 12.01 hrs, Volume= 1,372 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 615.58' @ 12.00 hrs Surf.Area= 273 sf Storage= 610 cf

Plug-Flow detention time= 769.3 min calculated for 1,372 cf (85% of inflow)  
 Center-of-Mass det. time= 702.1 min ( 1,464.5 - 762.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.50'	610 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.50	273	0.0	0	0
613.99	273	40.0	381	381
614.00	273	20.0	1	382
615.33	273	50.0	182	563
615.50	273	100.0	46	610

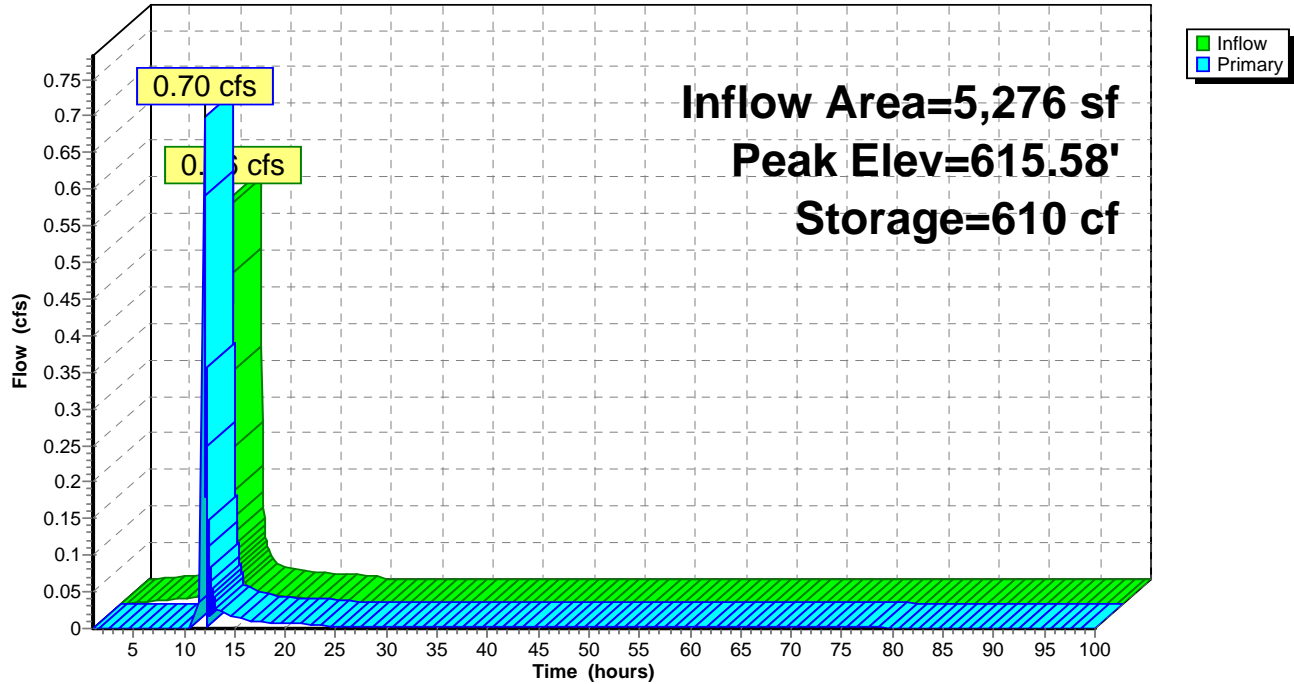
Device	Routing	Invert	Outlet Devices
#1	Primary	612.64'	<b>6.0" Round Culvert</b> L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.64' / 612.59' S= 0.0125 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.12'	<b>6.0" Round Culvert</b> L= 39.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.12' / 611.12' S= 0.0000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.50'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.49'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.62 cfs @ 12.01 hrs HW=615.57' TW=591.17' (Dynamic Tailwater)

1=Culvert (Passes 0.62 cfs of 1.55 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.26 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.61 cfs @ 0.94 fps)

Pond DS 2: Planter PB-1A

Hydrograph



**Summary for Pond DS 28: DS 28**

Inflow Area = 9,492 sf, 98.75% Impervious, Inflow Depth > 3.60" for 25 Year event  
 Inflow = 1.01 cfs @ 12.03 hrs, Volume= 2,844 cf  
 Outflow = 1.01 cfs @ 12.03 hrs, Volume= 2,847 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.01 cfs @ 12.03 hrs, Volume= 2,847 cf

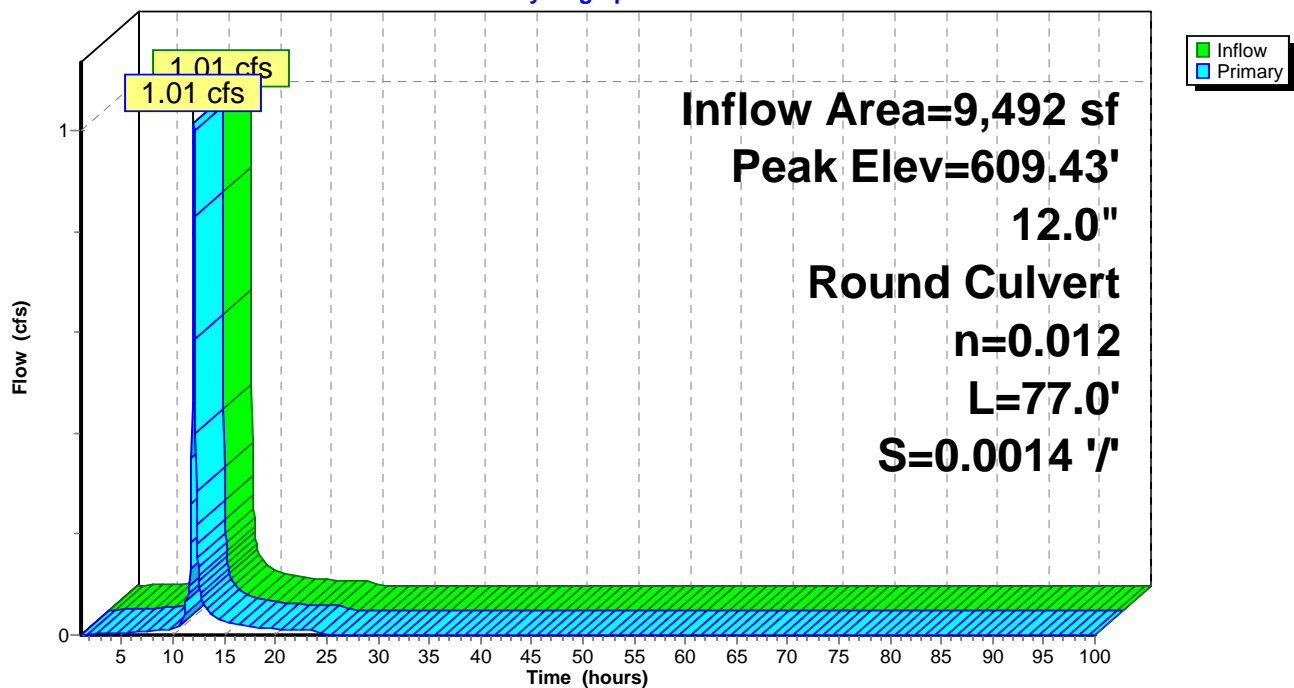
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.43' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.99 cfs @ 12.03 hrs HW=609.42' TW=591.20' (Dynamic Tailwater)  
 ↳ **1=Culvert** (Barrel Controls 0.99 cfs @ 2.32 fps)

**Pond DS 28: DS 28****Hydrograph**

**Summary for Pond DS 29: Planter PB-1B**

[80] Warning: Exceeded Pond DS 30 by 0.07' @ 24.20 hrs (0.21 cfs 1,820 cf)

Inflow Area = 5,742 sf, 97.93% Impervious, Inflow Depth = 3.64" for 25 Year event  
 Inflow = 0.61 cfs @ 12.03 hrs, Volume= 1,744 cf  
 Outflow = 0.61 cfs @ 12.03 hrs, Volume= 1,668 cf, Atten= 0%, Lag= 0.2 min  
 Primary = 0.61 cfs @ 12.03 hrs, Volume= 1,668 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 614.08' @ 12.03 hrs Surf.Area= 101 sf Storage= 224 cf

Plug-Flow detention time= 382.0 min calculated for 1,668 cf (96% of inflow)  
 Center-of-Mass det. time= 297.2 min ( 1,147.5 - 850.3 )

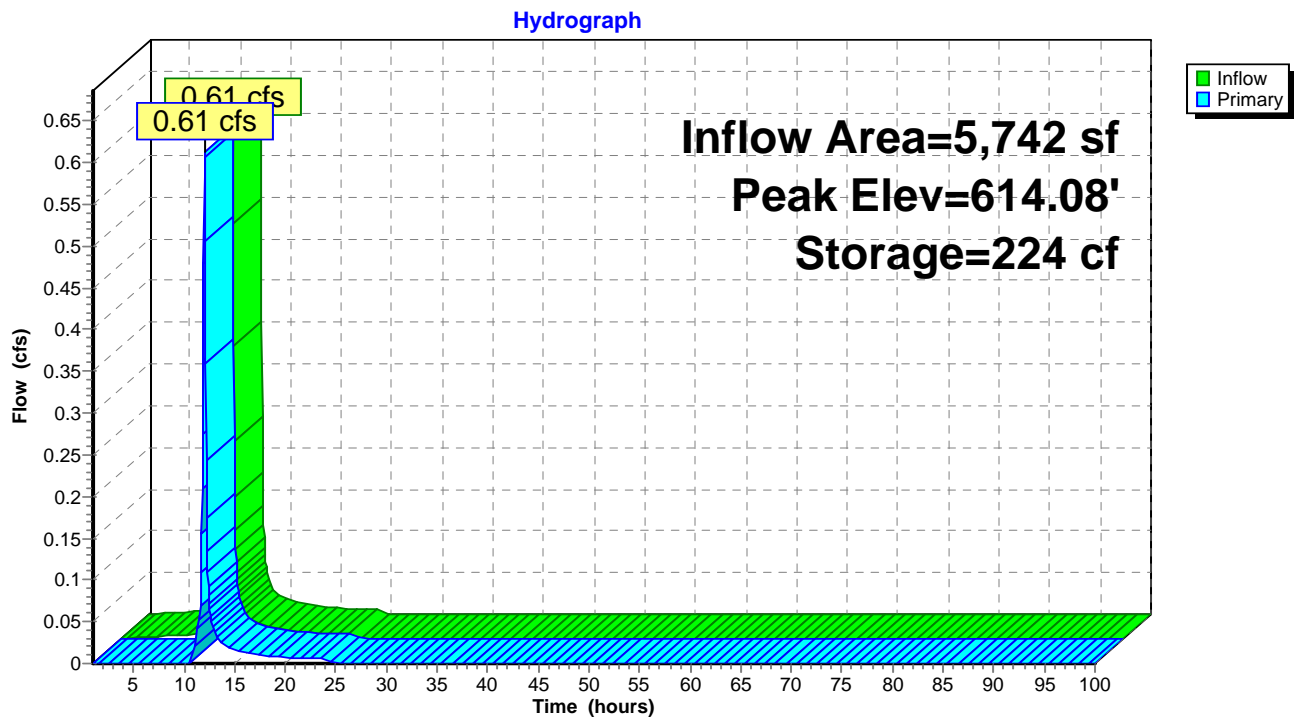
Volume	Invert	Avail.Storage	Storage Description	
#1	609.10'	225 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
609.10	101	0.0	0	0
612.60	101	40.0	141	141
612.61	101	20.0	0	142
613.93	101	50.0	67	208
614.10	101	100.0	17	225

Device	Routing	Invert	Outlet Devices
#1	Primary	610.41'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.41' / 610.35' S= 0.0120 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.75'	<b>6.0" Round Culvert</b> L= 50.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 609.75' / 609.75' S= 0.0000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	609.10'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.00'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.60 cfs @ 12.03 hrs HW=614.08' TW=609.42' (Dynamic Tailwater)

- 1=Culvert (Passes 0.60 cfs of 1.75 cfs potential flow)
- 2=Culvert (Passes 0.00 cfs of 1.29 cfs potential flow)
- 3=Exfiltration (Exfiltration Controls 0.00 cfs)
- 4=Orifice/Grate (Weir Controls 0.60 cfs @ 0.93 fps)

Pond DS 29: Planter PB-1B





### Summary for Pond DS 3: DS 3

Inflow Area = 34,149 sf, 98.47% Impervious, Inflow Depth = 3.75" for 25 Year event  
 Inflow = 3.36 cfs @ 12.06 hrs, Volume= 10,677 cf  
 Outflow = 3.36 cfs @ 12.06 hrs, Volume= 10,677 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.03 cfs @ 12.04 hrs, Volume= 2,747 cf  
 Secondary = 2.44 cfs @ 12.08 hrs, Volume= 7,930 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 620.39' @ 12.08 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.60'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.60' / 612.55' S= 0.0125 ' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	613.60'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 613.60' / 613.55' S= 0.0083 ' / Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

**Primary OutFlow** Max=1.34 cfs @ 12.04 hrs HW=619.70' TW=617.70' (Dynamic Tailwater)

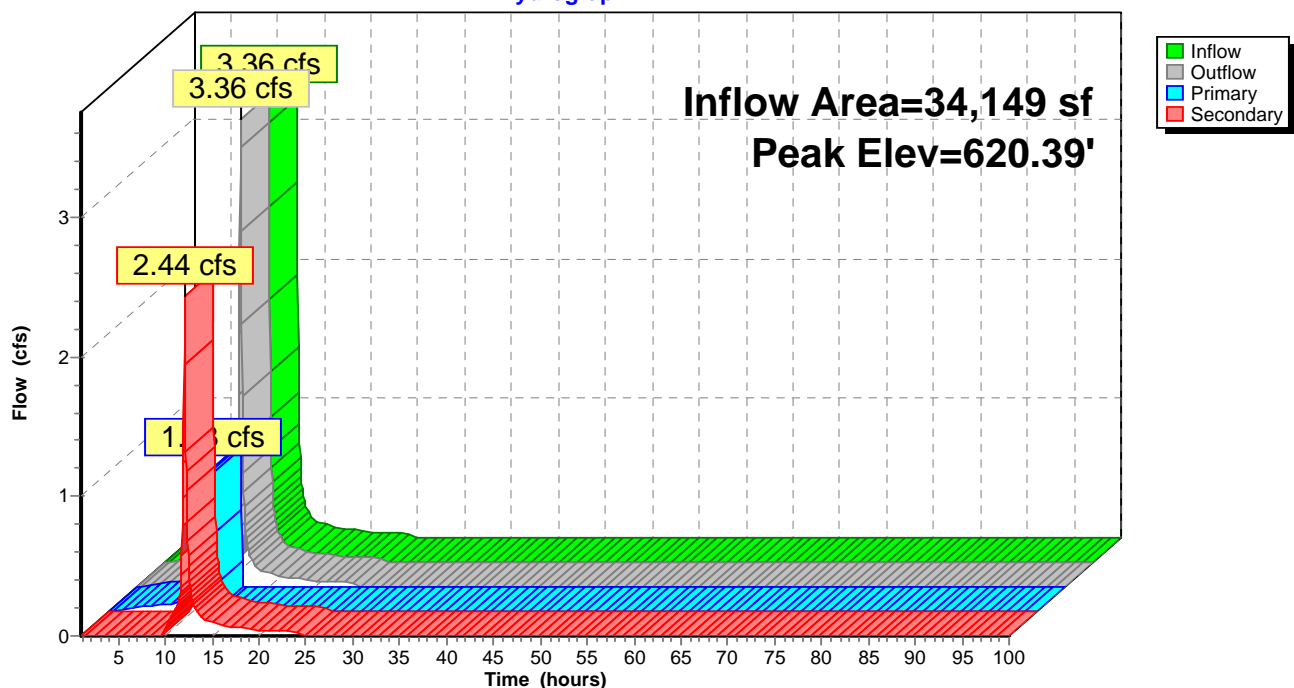
↑**1=Culvert** (Inlet Controls 1.34 cfs @ 6.80 fps)

**Secondary OutFlow** Max=2.34 cfs @ 12.08 hrs HW=619.96' TW=591.20' (Dynamic Tailwater)

↑**2=Culvert** (Inlet Controls 2.34 cfs @ 11.90 fps)

### Pond DS 3: DS 3

Hydrograph



**Summary for Pond DS 30: Planter PB-2B**

[93] Warning: Storage range exceeded by 0.30'

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=36)

Inflow Area = 2,715 sf, 98.42% Impervious, Inflow Depth = 3.77" for 25 Year event  
 Inflow = 0.29 cfs @ 12.03 hrs, Volume= 852 cf  
 Outflow = 0.29 cfs @ 12.03 hrs, Volume= 794 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.29 cfs @ 12.03 hrs, Volume= 794 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 614.23' @ 12.03 hrs Surf.Area= 49 sf Storage= 109 cf

Plug-Flow detention time= 249.7 min calculated for 794 cf (93% of inflow)  
 Center-of-Mass det. time= 212.5 min ( 966.1 - 753.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	608.93'	109 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.93	49	0.0	0	0
612.43	49	40.0	69	69
612.44	49	20.0	0	69
613.76	49	50.0	32	101
613.93	49	100.0	8	109

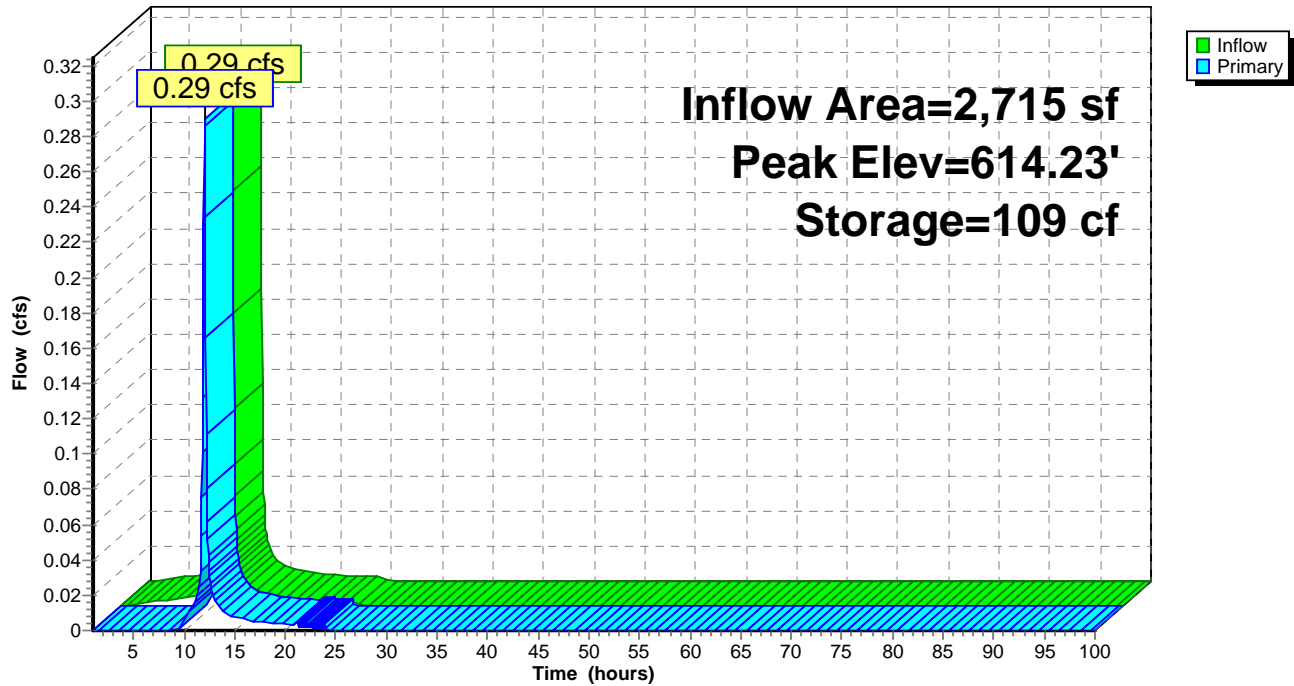
Device	Routing	Invert	Outlet Devices
#1	Primary	611.87'	<b>6.0" Round Culvert</b> L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.87' / 611.20' S= 0.0114 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.43'	<b>6.0" Round Culvert</b> L= 7.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.43' / 609.43' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.93'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.92'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.28 cfs @ 12.03 hrs HW=614.22' TW=614.08' (Dynamic Tailwater)

1=Culvert (Outlet Controls 0.28 cfs @ 1.44 fps)  
 2=Culvert (Passes < 0.35 cfs potential flow)  
 3=Exfiltration (Passes < 0.00 cfs potential flow)  
 4=Orifice/Grate (Passes < 3.51 cfs potential flow)

Pond DS 30: Planter PB-2B

Hydrograph



**Summary for Pond DS 4: Planter PB-2A**

[93] Warning: Storage range exceeded by 3.66'

[90] Warning: Qout&gt;Qin may require smaller dt or Finer Routing

[80] Warning: Exceeded Pond DS 3 by 2.28' @ 24.90 hrs (1.35 cfs 149,967 cf)

Inflow Area = 34,149 sf, 98.47% Impervious, Inflow Depth = 0.97" for 25 Year event  
 Inflow = 1.03 cfs @ 12.04 hrs, Volume= 2,747 cf  
 Outflow = 1.09 cfs @ 12.00 hrs, Volume= 1,767 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.09 cfs @ 12.00 hrs, Volume= 1,767 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 619.05' @ 12.08 hrs Surf.Area= 395 sf Storage= 1,715 cf

Plug-Flow detention time= 974.2 min calculated for 1,767 cf (64% of inflow)

Center-of-Mass det. time= 888.5 min ( 1,459.1 - 570.6 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.39'	1,715 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.39	990	0.0	0	0
613.89	990	40.0	1,386	1,386
613.90	395	20.0	1	1,387
615.22	395	50.0	261	1,648
615.39	395	100.0	67	1,715

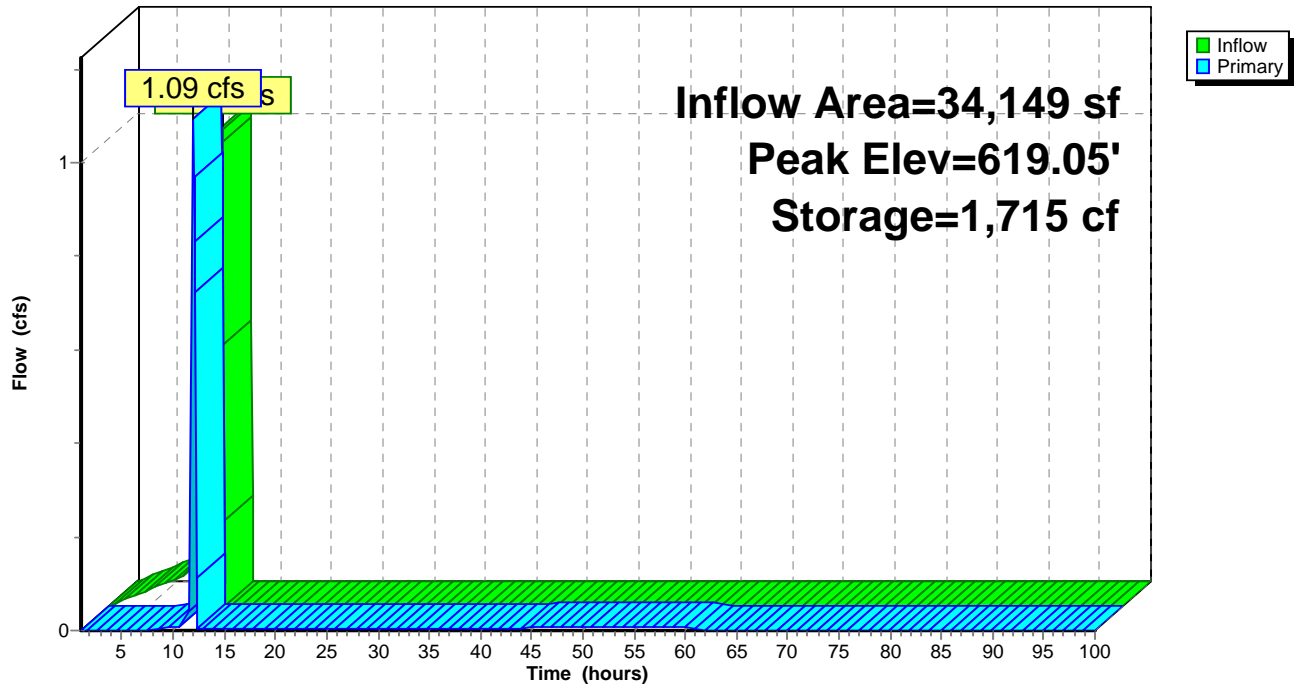
Device	Routing	Invert	Outlet Devices
#1	Primary	612.48'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.48' / 612.41' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.89'	<b>6.0" Round Culvert</b> L= 60.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.89' / 610.89' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.39'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.37'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=1.10 cfs @ 12.00 hrs HW=616.54' TW=615.20' (Dynamic Tailwater)

- 1=Culvert (Inlet Controls 1.10 cfs @ 5.58 fps)  
 2=Culvert (Passes < 0.73 cfs potential flow)  
 3=Exfiltration (Passes < 0.00 cfs potential flow)  
 4=Orifice/Grate (Passes < 20.86 cfs potential flow)

Pond DS 4: Planter PB-2A

Hydrograph



**Summary for Pond DS 5: Planter PB-3A**

Inflow Area = 2,103 sf, 92.44% Impervious, Inflow Depth = 3.65" for 25 Year event  
 Inflow = 0.22 cfs @ 12.03 hrs, Volume= 640 cf  
 Outflow = 0.03 cfs @ 12.51 hrs, Volume= 431 cf, Atten= 84%, Lag= 28.7 min  
 Primary = 0.03 cfs @ 12.51 hrs, Volume= 431 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 615.19' @ 12.51 hrs Surf.Area= 195 sf Storage= 435 cf

Plug-Flow detention time= 1,280.8 min calculated for 431 cf (67% of inflow)  
 Center-of-Mass det. time= 1,182.8 min ( 1,945.2 - 762.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.19'	435 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.19	195	0.0	0	0
613.68	195	40.0	272	272
613.69	195	20.0	0	273
615.02	195	50.0	130	402
615.19	195	100.0	33	435

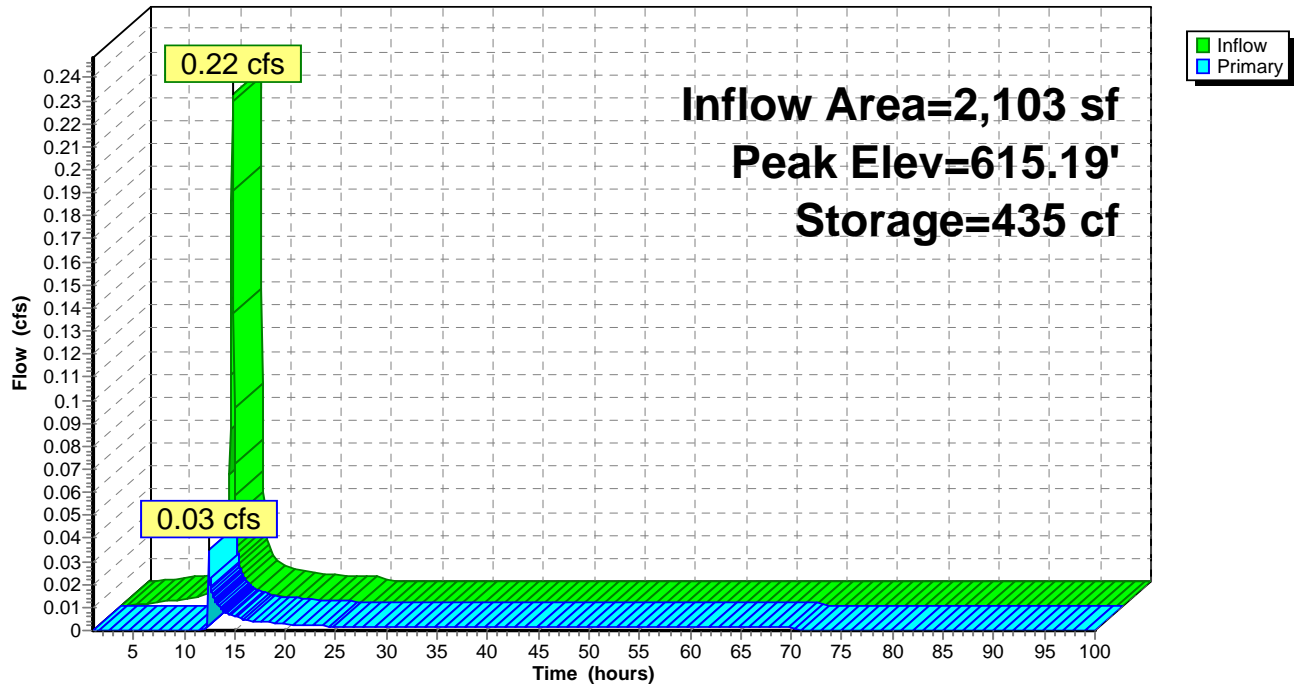
Device	Routing	Invert	Outlet Devices
#1	Primary	612.37'	<b>6.0" Round Culvert</b> L= 5.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.37' / 612.30' S= 0.0127 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.61'	<b>6.0" Round Culvert</b> L= 28.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.61' / 610.61' S= 0.0000 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.19'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.18'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.03 cfs @ 12.51 hrs HW=615.19' TW=612.93' (Dynamic Tailwater)

1=Culvert (Passes 0.03 cfs of 1.42 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.41 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.03 cfs @ 0.34 fps)

## Pond DS 5: Planter PB-3A

Hydrograph



### Summary for Pond DS 6: DS 6

[80] Warning: Exceeded Pond DS 10 by 2.16' @ 2.50 hrs (0.01 cfs 2,325 cf)

[80] Warning: Exceeded Pond DS 11 by 2.47' @ 2.50 hrs (0.01 cfs 2,980 cf)

[80] Warning: Exceeded Pond DS 9 by 2.10' @ 2.50 hrs (0.01 cfs 1,999 cf)

[80] Warning: Exceeded Pond DS8 by 1.37' @ 11.95 hrs (0.00 cfs 5 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth > 3.94" for 25 Year event  
 Inflow = 1.52 cfs @ 12.05 hrs, Volume= 7,663 cf  
 Outflow = 1.52 cfs @ 12.04 hrs, Volume= 7,663 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.52 cfs @ 12.04 hrs, Volume= 7,663 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 614.50' @ 12.05 hrs

Flood Elev= 647.22'

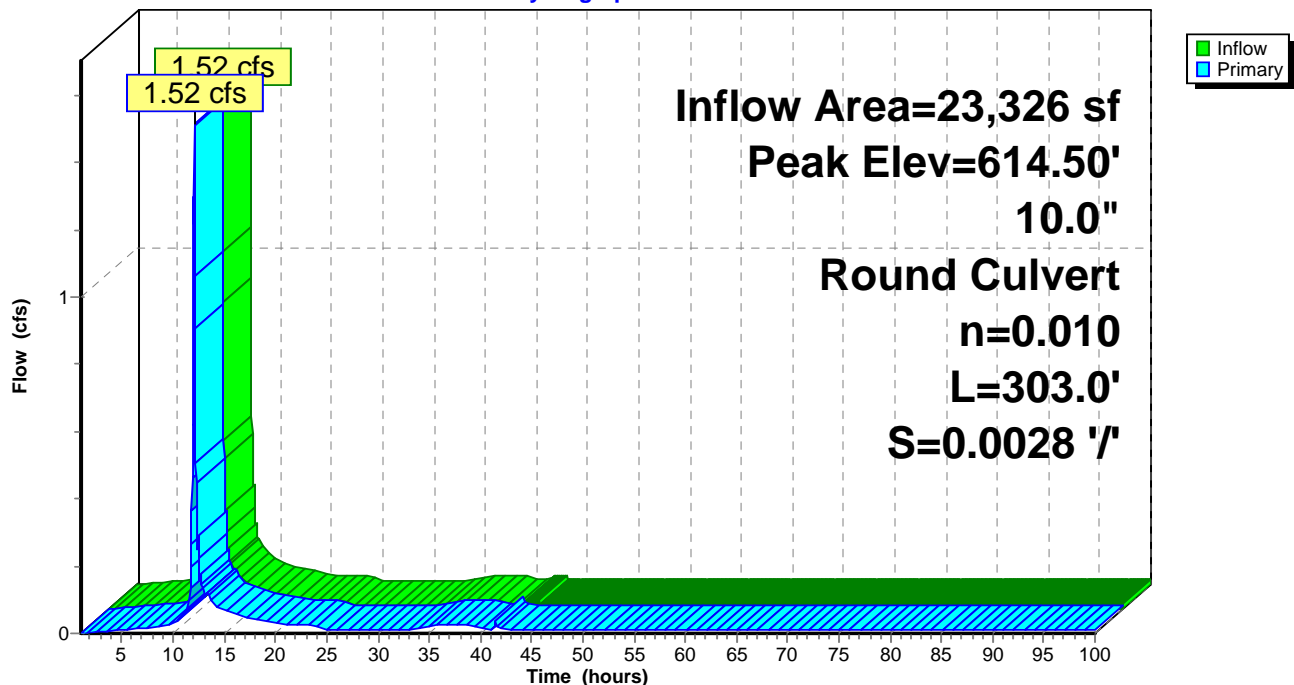
Device	Routing	Invert	Outlet Devices
#1	Primary	612.27'	<b>10.0" Round Culvert</b> L= 303.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.27' / 611.42' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=1.49 cfs @ 12.04 hrs HW=614.45' TW=613.44' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 1.49 cfs @ 2.73 fps)

### Pond DS 6: DS 6

Hydrograph





### Summary for Pond DS 7: Planter PB-5A

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=10)

Inflow Area = 3,711 sf, 98.14% Impervious, Inflow Depth = 3.77" for 25 Year event  
 Inflow = 0.40 cfs @ 12.03 hrs, Volume= 1,164 cf  
 Outflow = 0.51 cfs @ 12.05 hrs, Volume= 954 cf, Atten= 0%, Lag= 1.2 min  
 Primary = 0.51 cfs @ 12.05 hrs, Volume= 954 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 615.67' @ 12.05 hrs Surf.Area= 84 sf Storage= 387 cf

Plug-Flow detention time= 377.3 min calculated for 954 cf (82% of inflow)  
 Center-of-Mass det. time= 299.9 min ( 1,053.4 - 753.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.79'	397 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.79	234	0.0	0	0
614.28	234	40.0	327	327
614.29	84	20.0	0	327
615.62	84	50.0	56	383
615.79	84	100.0	14	397

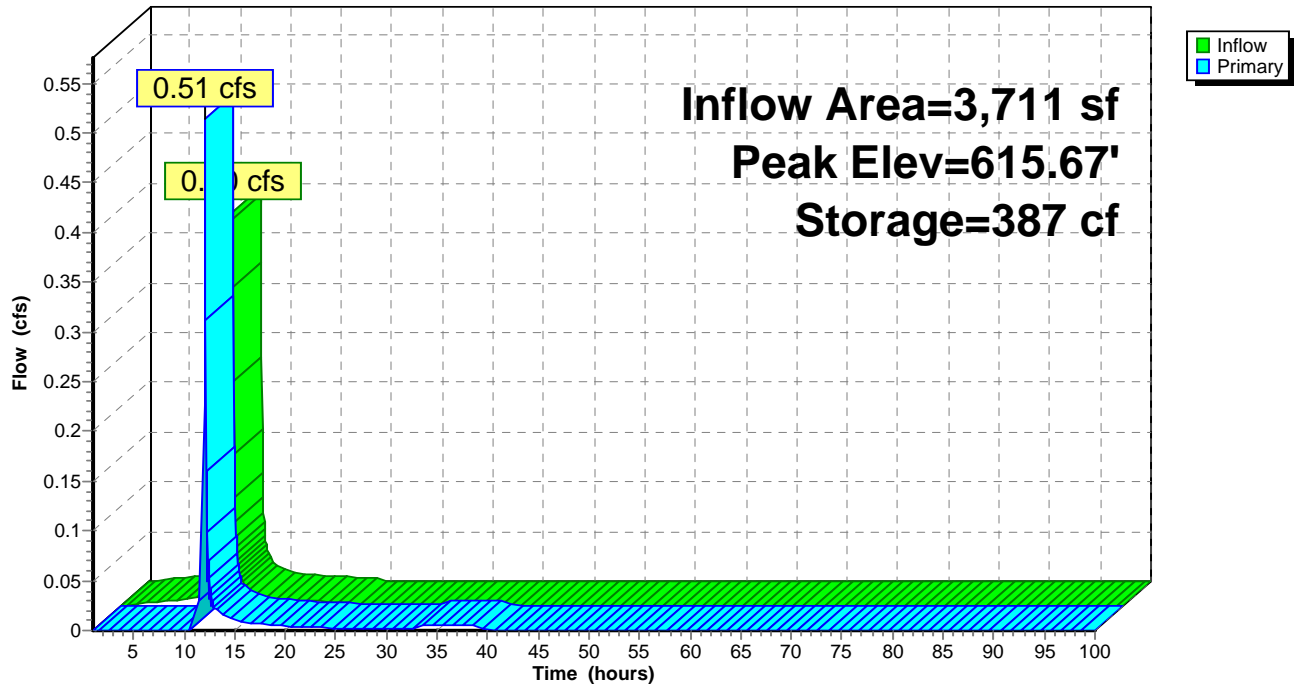
Device	Routing	Invert	Outlet Devices
#1	Primary	613.04'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.29'	<b>6.0" Round Culvert</b> L= 15.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.29' / 611.29' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.79'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.60'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.51 cfs @ 12.05 hrs HW=615.67' TW=614.50' (Dynamic Tailwater)

1=Culvert (Passes 0.51 cfs of 1.02 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.02 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.51 cfs @ 0.88 fps)

## Pond DS 7: Planter PB-5A

Hydrograph



**Summary for Pond DS 9: Planter PB-7A**

[93] Warning: Storage range exceeded by 0.01'

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=9)

Inflow Area = 3,275 sf, 96.52% Impervious, Inflow Depth = 3.65" for 25 Year event  
 Inflow = 0.35 cfs @ 12.03 hrs, Volume= 997 cf  
 Outflow = 0.08 cfs @ 12.45 hrs, Volume= 674 cf, Atten= 78%, Lag= 25.2 min  
 Primary = 0.08 cfs @ 12.45 hrs, Volume= 674 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 615.50' @ 12.45 hrs Surf.Area= 141 sf Storage= 665 cf

Plug-Flow detention time= 899.7 min calculated for 674 cf (68% of inflow)  
 Center-of-Mass det. time= 802.0 min ( 1,564.4 - 762.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.49'	665 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.49	391	0.0	0	0
613.99	391	40.0	547	547
614.00	141	20.0	1	548
615.32	141	50.0	93	641
615.49	141	100.0	24	665

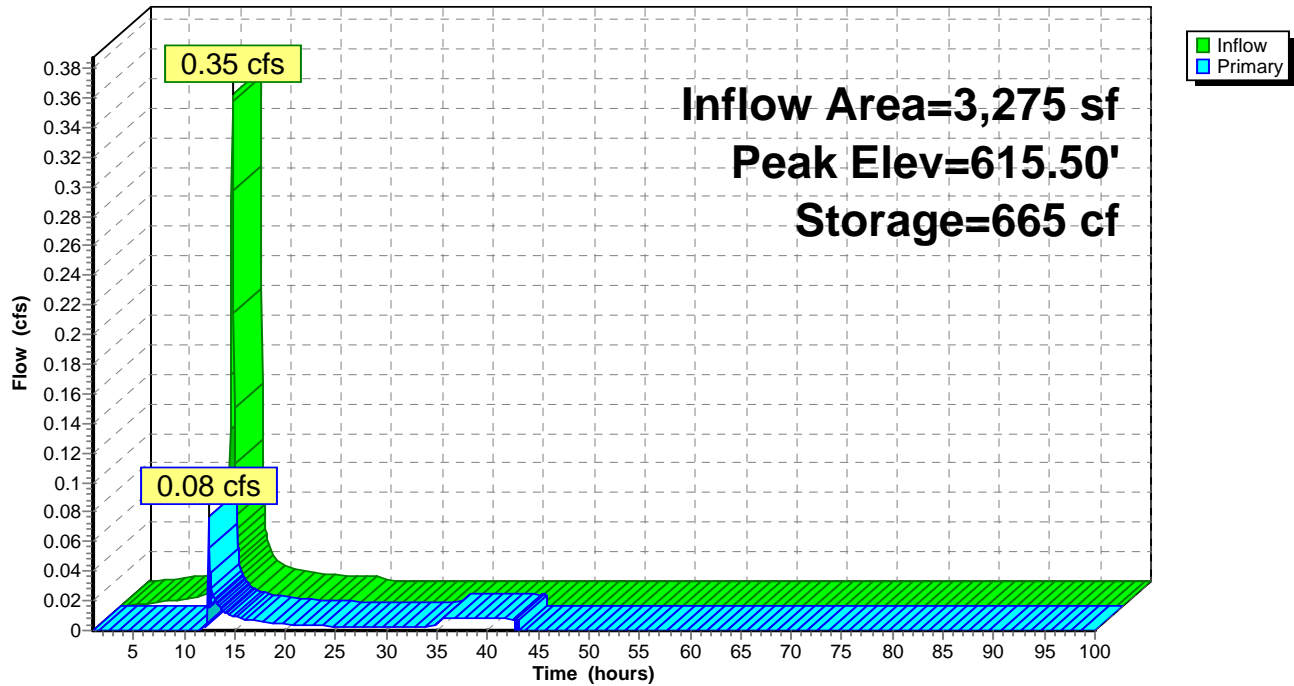
Device	Routing	Invert	Outlet Devices
#1	Primary	612.30'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.30' / 612.23' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.99'	<b>6.0" Round Culvert</b> L= 28.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.99' / 610.99' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.49'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.48'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.08 cfs @ 12.45 hrs HW=615.50' TW=612.95' (Dynamic Tailwater)

1=Culvert (Passes 0.08 cfs of 1.51 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.30 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.07 cfs @ 0.46 fps)

## Pond DS 9: Planter PB-7A

Hydrograph



### Summary for Pond DS-1: DS 1

[80] Warning: Exceeded Pond DS 15 by 2.55' @ 1.55 hrs (0.27 cfs 64,565 cf)

[80] Warning: Exceeded Pond DS 4 by 2.15' @ 1.40 hrs (0.01 cfs 184 cf)

[80] Warning: Exceeded Pond DS 5 by 2.74' @ 12.10 hrs (1.56 cfs 594 cf)

Inflow Area = 58,007 sf, 98.29% Impervious, Inflow Depth > 18.37" for 25 Year event  
 Inflow = 3.21 cfs @ 12.08 hrs, Volume= 88,821 cf  
 Outflow = 3.21 cfs @ 12.08 hrs, Volume= 88,821 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 3.21 cfs @ 12.08 hrs, Volume= 88,821 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 617.33' @ 12.09 hrs

Flood Elev= 647.22'

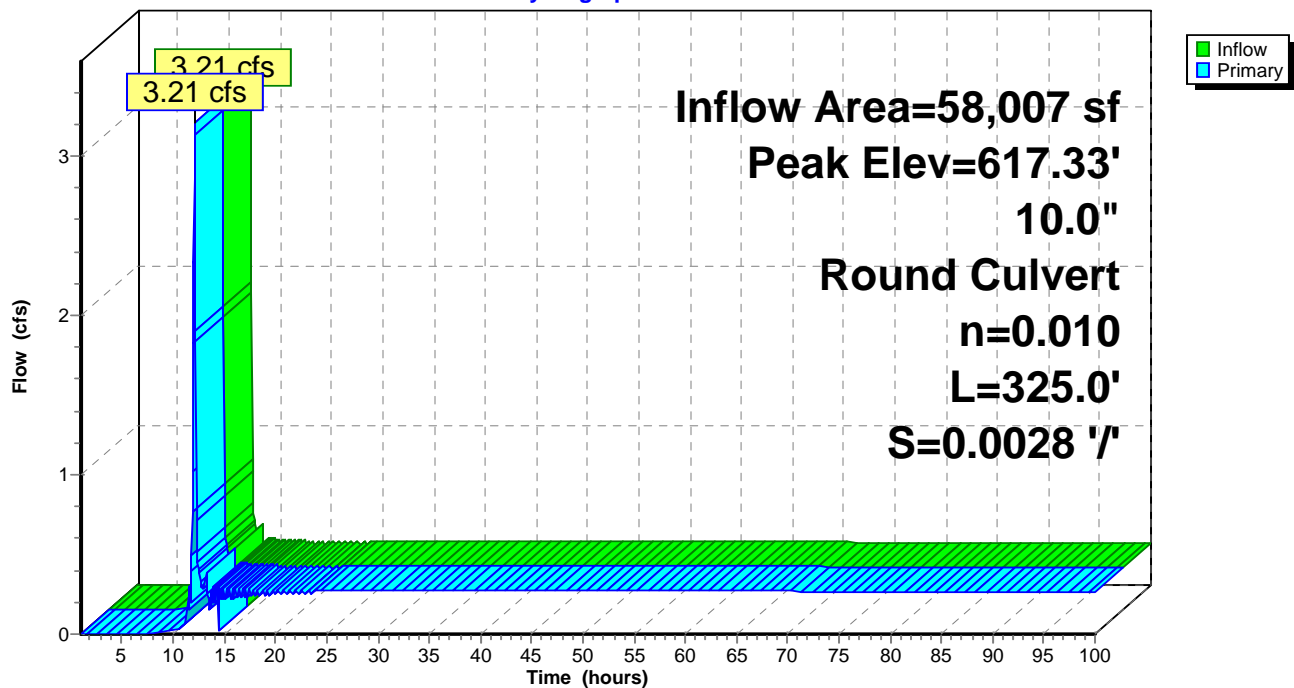
Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=3.05 cfs @ 12.08 hrs HW=616.92' TW=591.20' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 3.05 cfs @ 5.59 fps)

### Pond DS-1: DS 1

Hydrograph



**Summary for Pond DS8: Planter PB-6A**

Inflow Area = 1,765 sf, 96.09% Impervious, Inflow Depth = 3.65" for 25 Year event  
 Inflow = 0.19 cfs @ 12.03 hrs, Volume= 537 cf  
 Outflow = 0.01 cfs @ 13.35 hrs, Volume= 311 cf, Atten= 95%, Lag= 79.2 min  
 Primary = 0.01 cfs @ 13.35 hrs, Volume= 311 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 615.62' @ 13.35 hrs Surf.Area= 84 sf Storage= 399 cf

Plug-Flow detention time= 955.1 min calculated for 310 cf (58% of inflow)  
 Center-of-Mass det. time= 845.0 min ( 1,607.4 - 762.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.63'	399 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.63	235	0.0	0	0
614.13	235	40.0	329	329
614.14	84	20.0	0	329
615.46	84	50.0	55	385
615.63	84	100.0	14	399

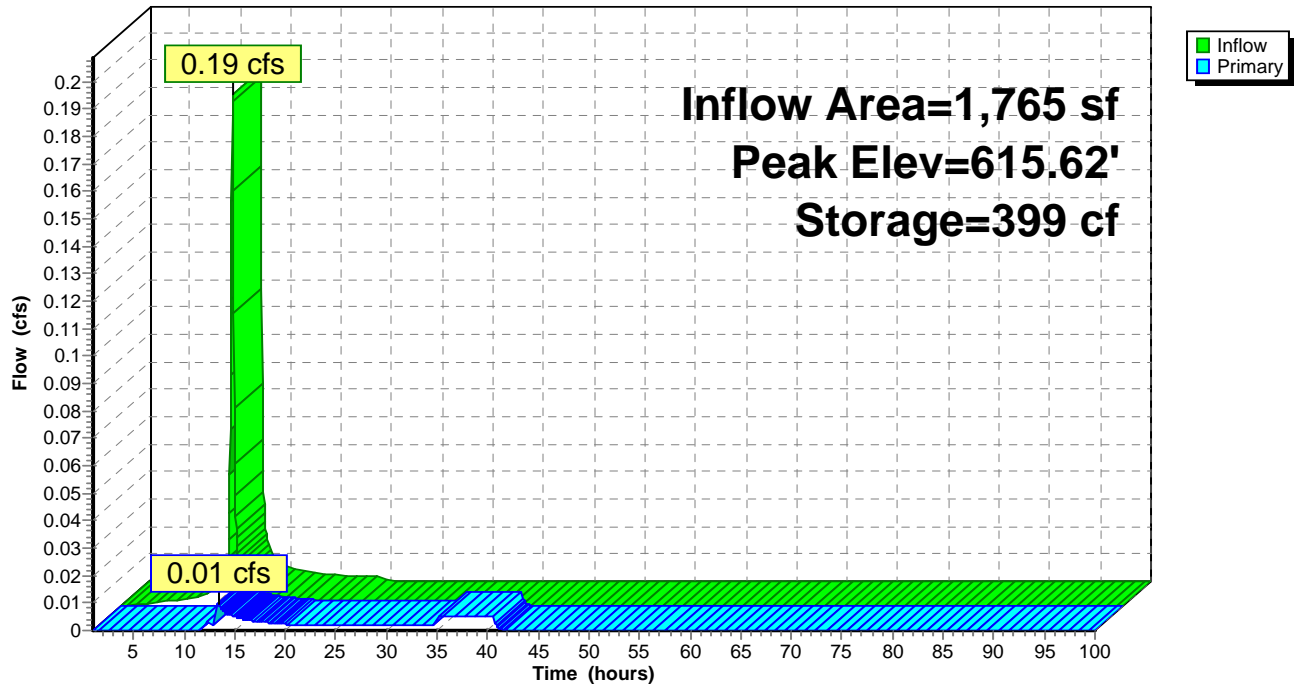
Device	Routing	Invert	Outlet Devices
#1	Primary	613.04'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.13'	<b>6.0" Round Culvert</b> L= 14.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.13' / 611.13' S= 0.0000 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.63'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.62'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.01 cfs @ 13.35 hrs HW=615.62' TW=612.78' (Dynamic Tailwater)

1=Culvert (Passes 0.01 cfs of 1.44 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.52 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.01 cfs @ 0.22 fps)

## Pond DS8: Planter PB-6A

Hydrograph



**Genesee St Final**

Prepared by Microsoft

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*Type II 24-hr 50% Rainfall=0.35"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 1: Area 1</b>	Runoff Area=5,276 sf 95.77% Impervious Runoff Depth=0.14" Tc=12.0 min CN=97 Runoff=0.02 cfs 61 cf
<b>Subcatchment 1M: Area 1M M and T Lot</b>	Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=0.19" Tc=15.0 min CN=98 Runoff=0.17 cfs 469 cf
<b>Subcatchment 2: Area 2</b>	Runoff Area=3,939 sf 92.08% Impervious Runoff Depth=0.14" Tc=12.0 min CN=97 Runoff=0.02 cfs 46 cf
<b>Subcatchment 2M: Area 2M M and T Two</b>	Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.08 cfs 209 cf
<b>Subcatchment 3: Area 3</b>	Runoff Area=2,103 sf 92.44% Impervious Runoff Depth=0.14" Tc=12.0 min CN=97 Runoff=0.01 cfs 24 cf
<b>Subcatchment 4: Area 4</b>	Runoff Area=6,163 sf 94.95% Impervious Runoff Depth=0.14" Tc=12.0 min CN=97 Runoff=0.03 cfs 71 cf
<b>Subcatchment 4B: Area 4B</b>	Runoff Area=2,141 sf 100.00% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.01 cfs 33 cf
<b>Subcatchment 5: Area 5</b>	Runoff Area=3,711 sf 98.14% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.02 cfs 58 cf
<b>Subcatchment 6: Area 6</b>	Runoff Area=1,765 sf 96.09% Impervious Runoff Depth=0.14" Tc=12.0 min CN=97 Runoff=0.01 cfs 20 cf
<b>Subcatchment 7: Area 7</b>	Runoff Area=3,275 sf 96.52% Impervious Runoff Depth=0.14" Tc=12.0 min CN=97 Runoff=0.01 cfs 38 cf
<b>Subcatchment 8: Area 8</b>	Runoff Area=2,841 sf 96.16% Impervious Runoff Depth=0.14" Tc=12.0 min CN=97 Runoff=0.01 cfs 33 cf
<b>Subcatchment 9: Area 9</b>	Runoff Area=2,159 sf 94.58% Impervious Runoff Depth=0.14" Tc=12.0 min CN=97 Runoff=0.01 cfs 25 cf
<b>Subcatchment 9A: Area 9A</b>	Runoff Area=4,063 sf 100.00% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.02 cfs 63 cf
<b>Subcatchment 9B: Area 9B</b>	Runoff Area=5,512 sf 100.00% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.03 cfs 86 cf
<b>Subcatchment 15: Area 15</b>	Runoff Area=3,027 sf 97.49% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.02 cfs 47 cf
<b>Subcatchment 15A: Area 15A</b>	Runoff Area=3,750 sf 100.00% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.02 cfs 58 cf



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*Type II 24-hr 50% Rainfall=0.35"*

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**Subcatchment 15B: Area 15B**Runoff Area=16,790 sf 100.00% Impervious Runoff Depth=0.19"  
Tc=12.0 min CN=98 Runoff=0.10 cfs 261 cf**Subcatchment 16: Area 16**Runoff Area=2,715 sf 98.42% Impervious Runoff Depth=0.19"  
Tc=12.0 min CN=98 Runoff=0.02 cfs 42 cf**Pond 84": 84" TRUNK SEWER**Peak Elev=590.21' Inflow=0.22 cfs 516 cf  
84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/ Outflow=0.22 cfs 519 cf**Pond DI 868: DI #868**Peak Elev=612.69' Inflow=0.06 cfs 148 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/ Outflow=0.06 cfs 149 cf**Pond DS 10: Planter PB-8A**Peak Elev=610.64' Storage=33 cf Inflow=0.01 cfs 33 cf  
Outflow=0.00 cfs 0 cf**Pond DS 11: Planter PB-9A**Peak Elev=610.28' Storage=25 cf Inflow=0.01 cfs 25 cf  
Outflow=0.00 cfs 0 cf**Pond DS 14: DS 14**Peak Elev=612.99' Inflow=0.11 cfs 280 cf  
Primary=0.09 cfs 265 cf Secondary=0.02 cfs 15 cf Outflow=0.11 cfs 280 cf**Pond DS 15: Planter PB-4A**Peak Elev=610.63' Storage=265 cf Inflow=0.09 cfs 265 cf  
Outflow=0.00 cfs 0 cf**Pond DS 2: Planter PB-1A**Peak Elev=611.06' Storage=61 cf Inflow=0.02 cfs 61 cf  
Outflow=0.00 cfs 0 cf**Pond DS 28: DS 28**Peak Elev=608.82' Inflow=0.02 cfs 58 cf  
12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/ Outflow=0.02 cfs 58 cf**Pond DS 29: Planter PB-1B**Peak Elev=610.26' Storage=47 cf Inflow=0.02 cfs 47 cf  
Outflow=0.00 cfs 0 cf**Pond DS 3: DS 3**Peak Elev=612.90' Inflow=0.18 cfs 514 cf  
Primary=0.18 cfs 515 cf Secondary=0.00 cfs 0 cf Outflow=0.18 cfs 515 cf**Pond DS 30: Planter PB-2B**Peak Elev=611.08' Storage=42 cf Inflow=0.02 cfs 42 cf  
Outflow=0.00 cfs 0 cf**Pond DS 4: Planter PB-2A**Peak Elev=611.69' Storage=515 cf Inflow=0.18 cfs 515 cf  
Outflow=0.00 cfs 0 cf**Pond DS 5: Planter PB-3A**Peak Elev=610.50' Storage=24 cf Inflow=0.01 cfs 24 cf  
Outflow=0.00 cfs 0 cf**Pond DS 6: DS 6**Peak Elev=612.70' Inflow=0.06 cfs 149 cf  
10.0" Round Culvert n=0.010 L=303.0' S=0.0028 '/ Outflow=0.06 cfs 148 cf**Pond DS 7: Planter PB-5A**Peak Elev=611.41' Storage=58 cf Inflow=0.02 cfs 58 cf  
Outflow=0.00 cfs 0 cf**Pond DS 9: Planter PB-7A**Peak Elev=610.73' Storage=38 cf Inflow=0.01 cfs 38 cf  
Outflow=0.00 cfs 0 cf

**Genesee St Final***Type II 24-hr 50% Rainfall=0.35"*

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**Pond DS-1: DS 1**

Peak Elev=612.66' Inflow=0.04 cfs 48 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.04 cfs 49 cf

**Pond DS8: Planter PB-6A**

Peak Elev=610.85' Storage=20 cf Inflow=0.01 cfs 20 cf  
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 112,891 sf   Runoff Volume = 1,644 cf   Average Runoff Depth = 0.17"**  
**1.61% Pervious = 1,812 sf   98.39% Impervious = 111,079 sf**

**Summary for Subcatchment 1: Area 1**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 61 cf, Depth= 0.14"

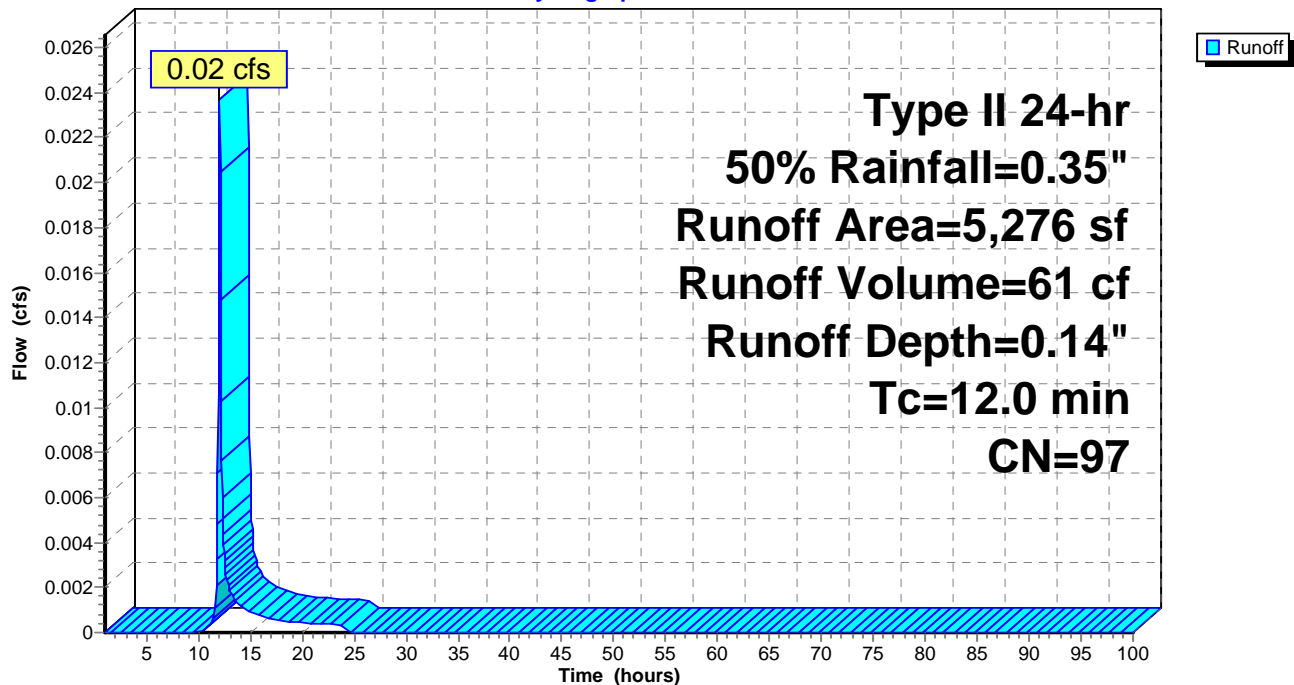
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
223	80	>75% Grass cover, Good, HSG D
5,053	98	Paved parking, HSG D
5,276	97	Weighted Average
223		4.23% Pervious Area
5,053		95.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 1: Area 1**

Hydrograph



**Summary for Subcatchment 1M: Area 1M M and T Lot one**

Runoff = 0.17 cfs @ 12.07 hrs, Volume= 469 cf, Depth= 0.19"

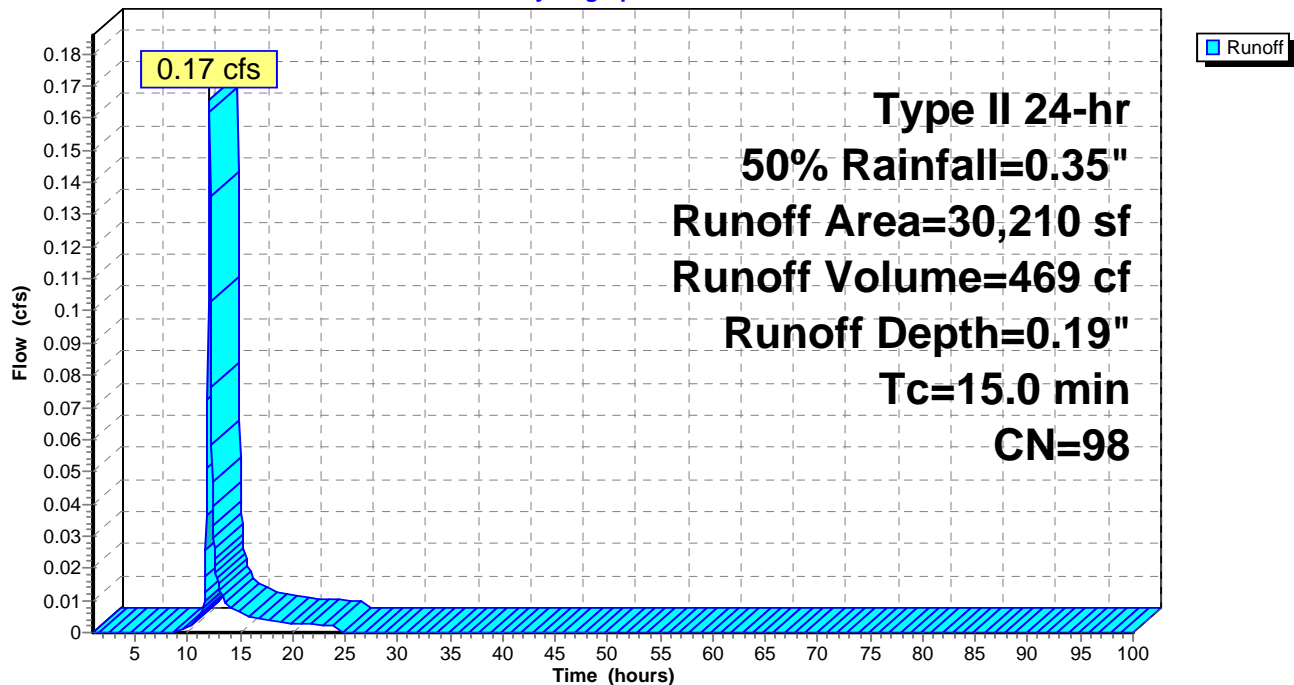
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
210	80	>75% Grass cover, Good, HSG D
30,000	98	Paved parking, HSG D
30,210	98	Weighted Average
210		0.70% Pervious Area
30,000		99.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					Direct Entry,

**Subcatchment 1M: Area 1M M and T Lot one**

Hydrograph



**Summary for Subcatchment 2: Area 2**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 46 cf, Depth= 0.14"

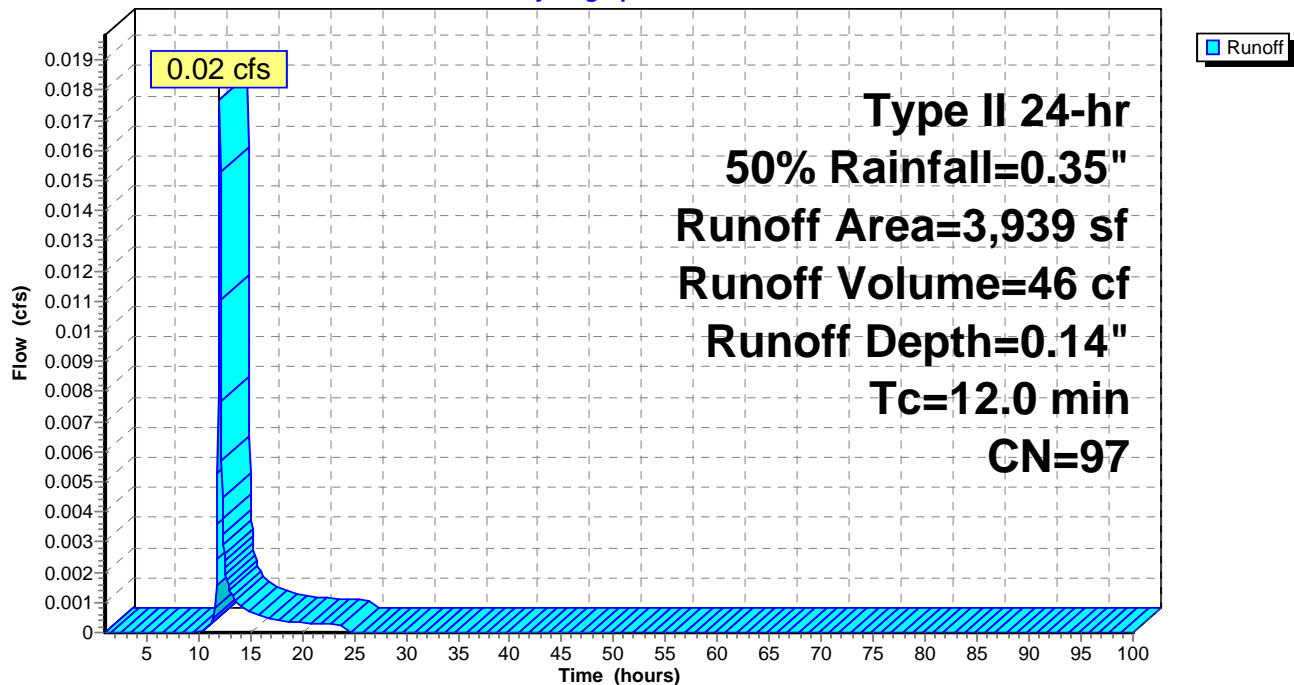
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
312	80	>75% Grass cover, Good, HSG D
3,627	98	Paved parking, HSG D
3,939	97	Weighted Average
312		7.92% Pervious Area
3,627		92.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 2: Area 2**

Hydrograph



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Type II 24-hr 50% Rainfall=0.35"

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**Summary for Subcatchment 2M: Area 2M M and T Two**

Runoff = 0.08 cfs @ 12.04 hrs, Volume= 209 cf, Depth= 0.19"

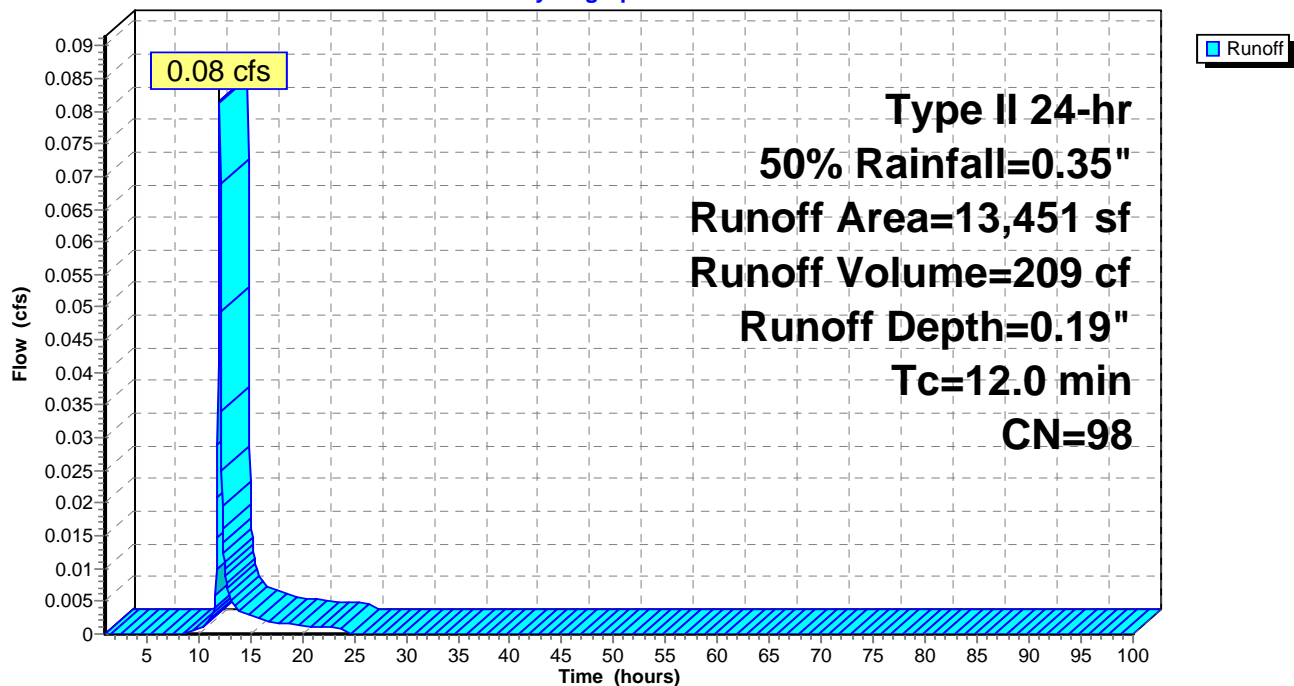
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
13,451	98	Paved parking, HSG D
13,451		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 2M: Area 2M M and T Two**

Hydrograph



**Summary for Subcatchment 3: Area 3**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 24 cf, Depth= 0.14"

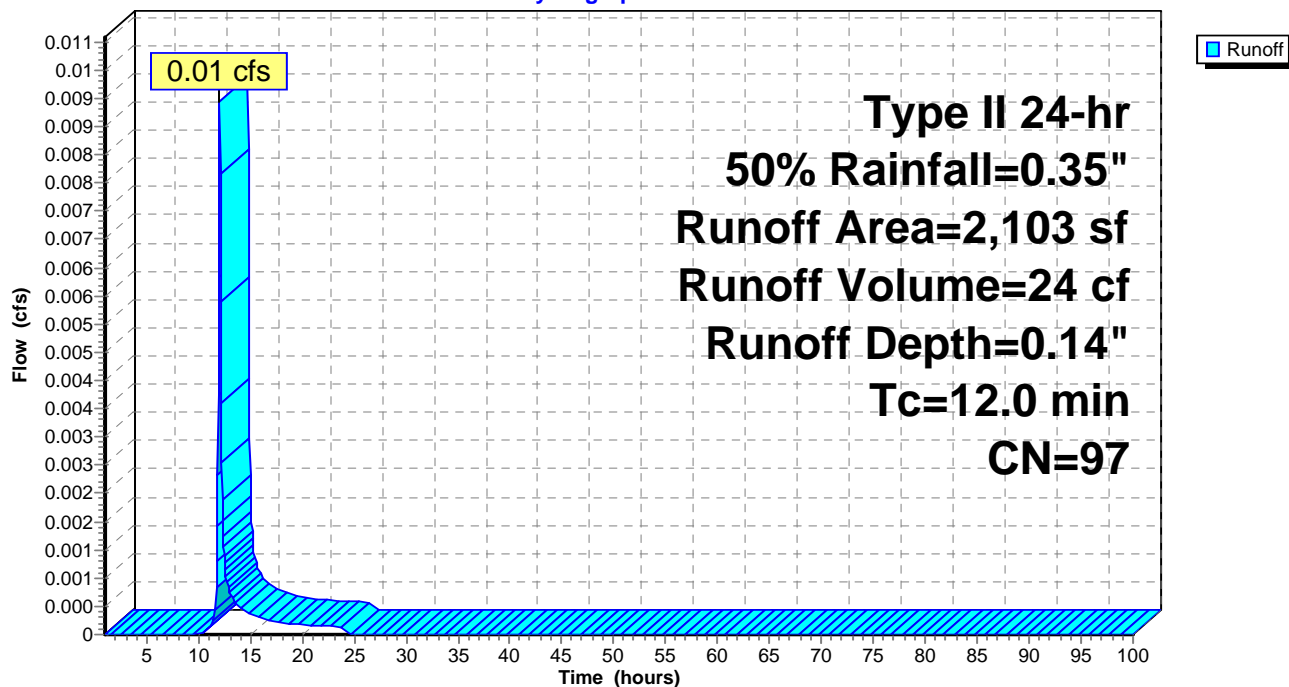
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
159	80	>75% Grass cover, Good, HSG D
1,944	98	Paved parking, HSG D
2,103	97	Weighted Average
159		7.56% Pervious Area
1,944		92.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 3: Area 3**

Hydrograph



**Summary for Subcatchment 4: Area 4**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 71 cf, Depth= 0.14"

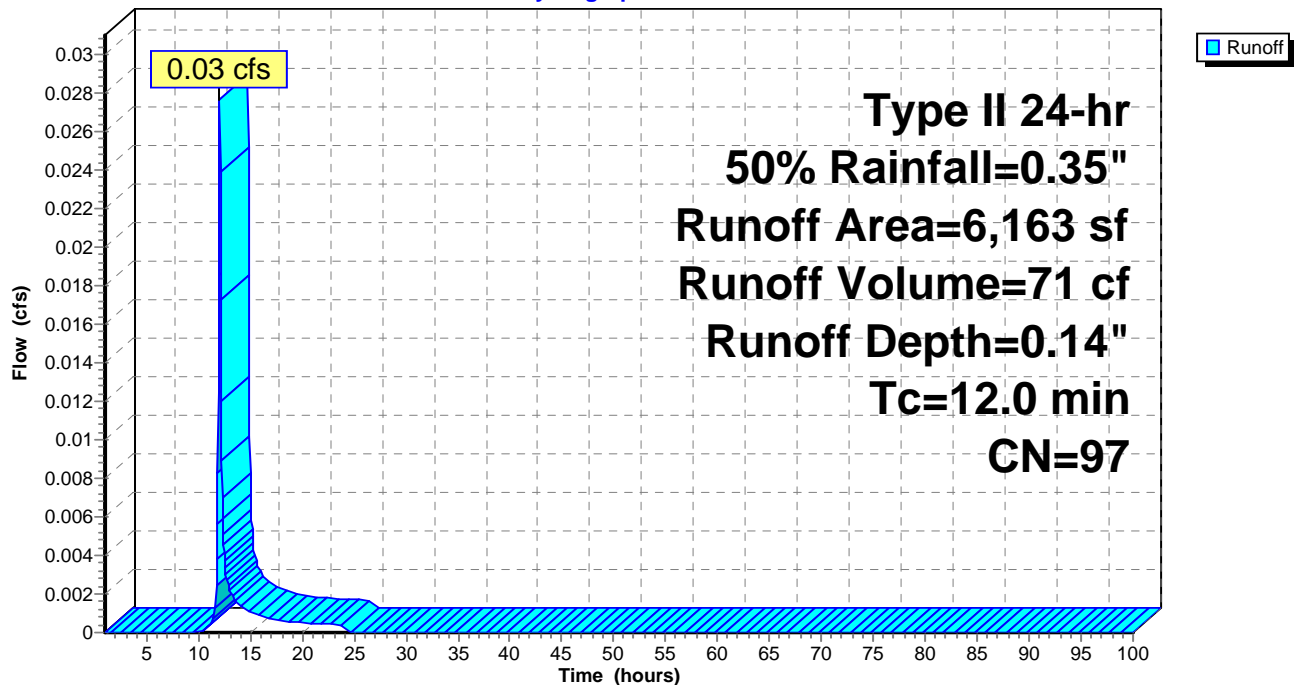
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
311	80	>75% Grass cover, Good, HSG D
5,852	98	Paved parking, HSG D
6,163	97	Weighted Average
311		5.05% Pervious Area
5,852		94.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 4: Area 4**

Hydrograph





**Summary for Subcatchment 4B: Area 4B**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 33 cf, Depth= 0.19"

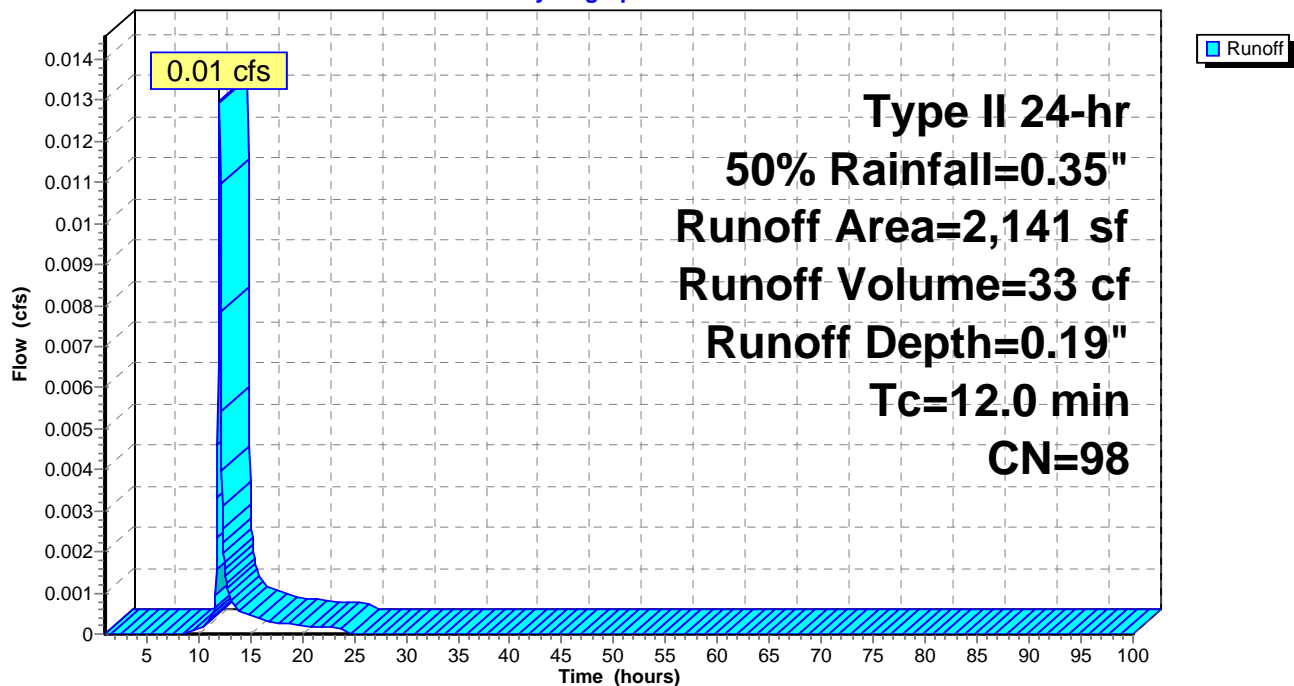
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
2,141	98	Paved parking, HSG D
2,141		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 4B: Area 4B**

Hydrograph



**Summary for Subcatchment 5: Area 5**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 58 cf, Depth= 0.19"

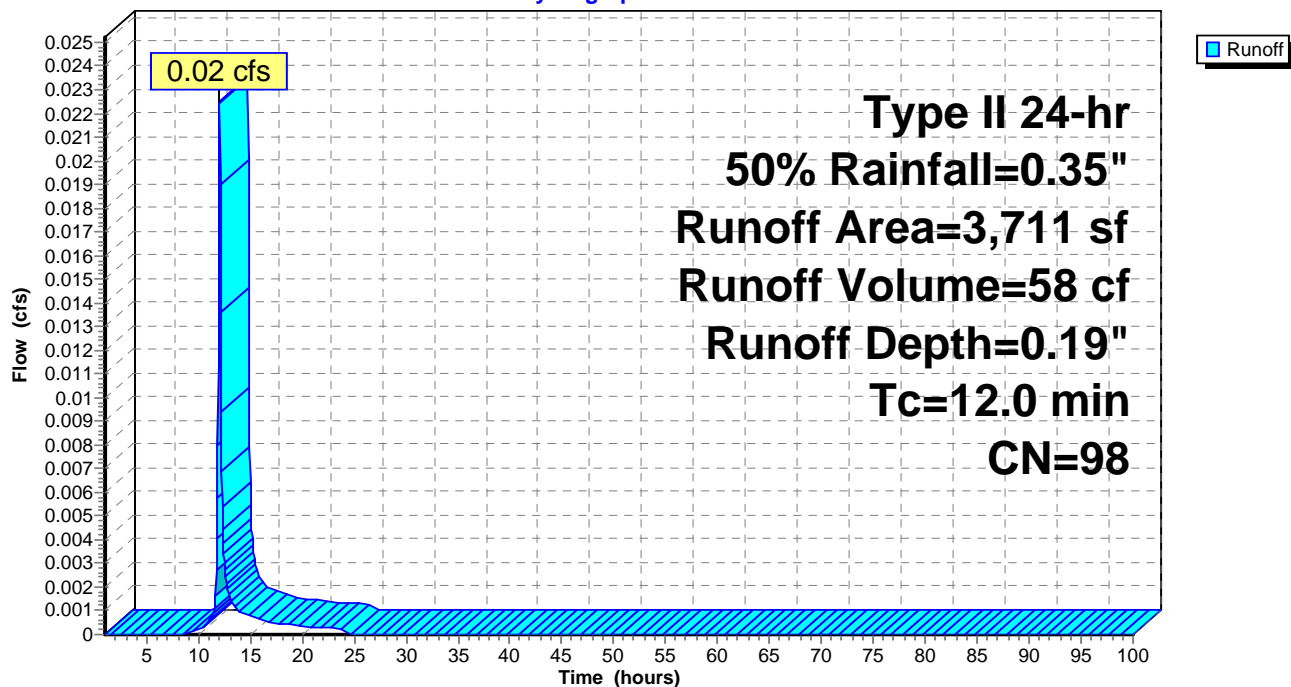
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
69	80	>75% Grass cover, Good, HSG D
3,642	98	Paved parking, HSG D
3,711	98	Weighted Average
69		1.86% Pervious Area
3,642		98.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 5: Area 5**

Hydrograph



**Summary for Subcatchment 6: Area 6**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 20 cf, Depth= 0.14"

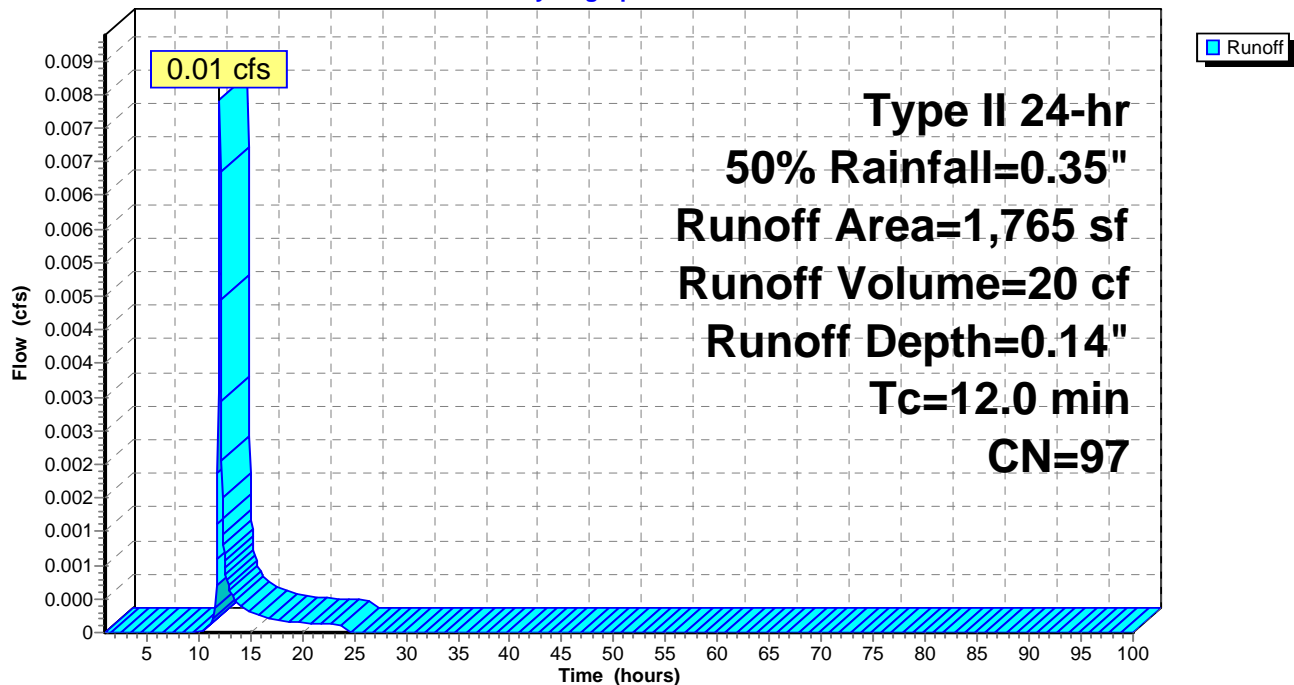
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
69	80	>75% Grass cover, Good, HSG D
1,696	98	Paved parking, HSG D
1,765	97	Weighted Average
69		3.91% Pervious Area
1,696		96.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 6: Area 6**

Hydrograph



**Summary for Subcatchment 7: Area 7**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 38 cf, Depth= 0.14"

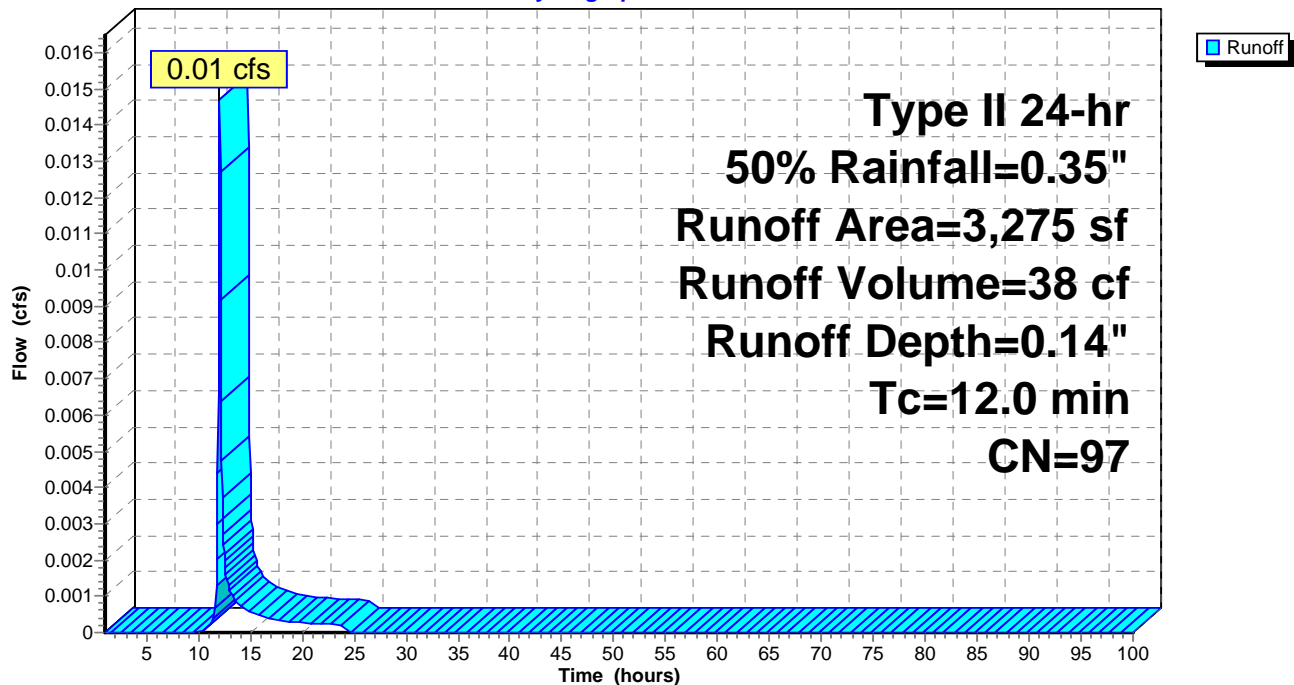
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
114	80	>75% Grass cover, Good, HSG D
3,161	98	Paved parking, HSG D
3,275	97	Weighted Average
114		3.48% Pervious Area
3,161		96.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 7: Area 7**

Hydrograph



**Summary for Subcatchment 8: Area 8**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 33 cf, Depth= 0.14"

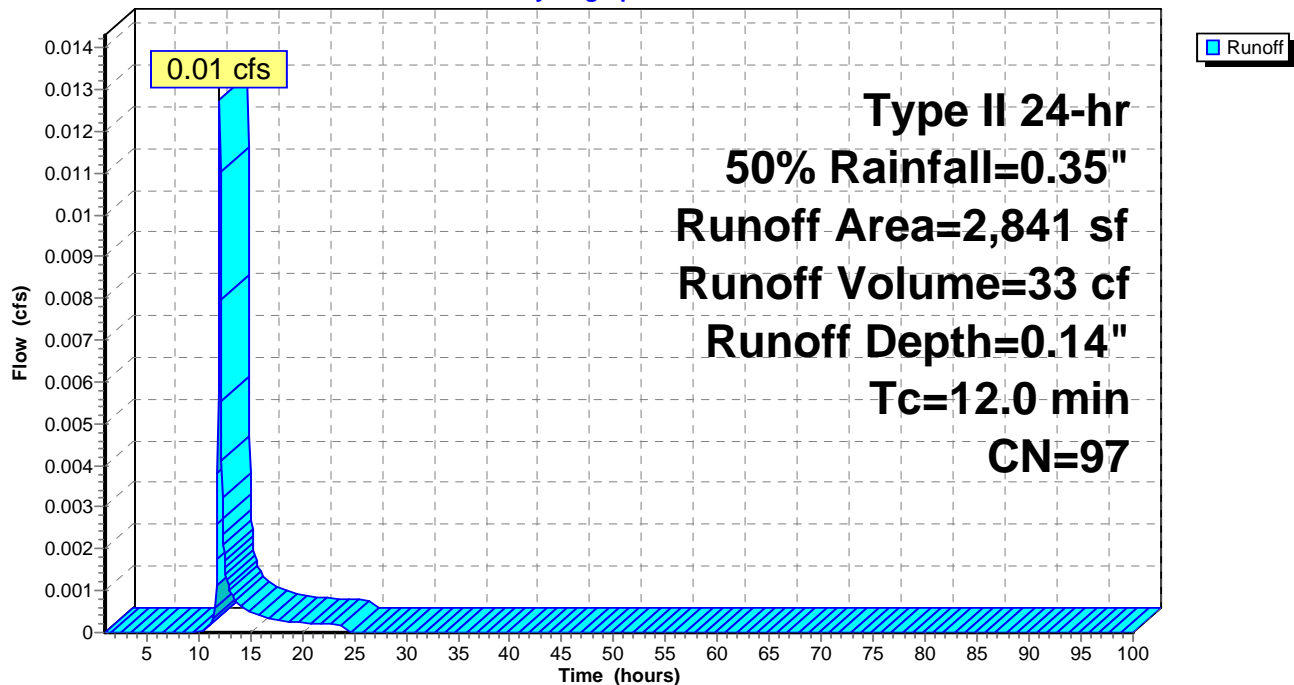
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
109	80	>75% Grass cover, Good, HSG D
2,732	98	Paved parking, HSG D
2,841	97	Weighted Average
109		3.84% Pervious Area
2,732		96.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 8: Area 8**

Hydrograph



**Summary for Subcatchment 9: Area 9**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 25 cf, Depth= 0.14"

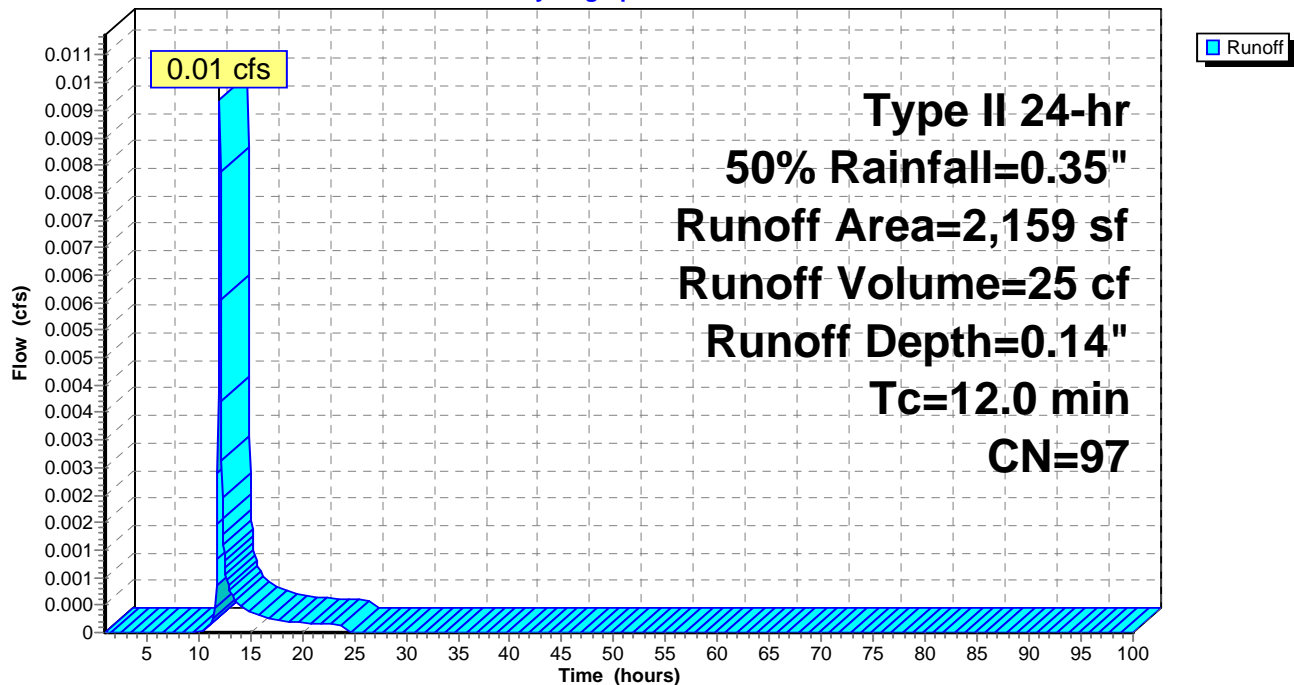
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
117	80	>75% Grass cover, Good, HSG D
2,042	98	Paved parking, HSG D
2,159	97	Weighted Average
117		5.42% Pervious Area
2,042		94.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9: Area 9**

Hydrograph



**Summary for Subcatchment 9A: Area 9A**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 63 cf, Depth= 0.19"

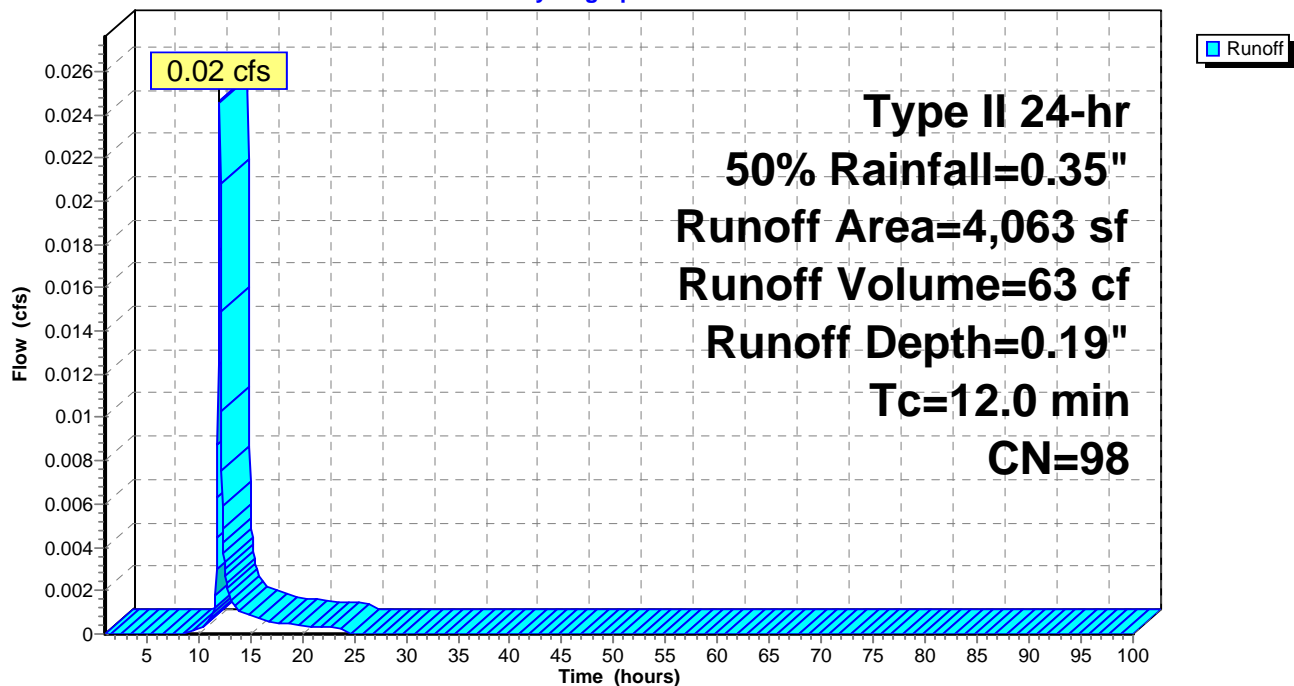
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
4,063	98	Paved parking, HSG D
4,063		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9A: Area 9A**

Hydrograph



**Summary for Subcatchment 9B: Area 9B**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 86 cf, Depth= 0.19"

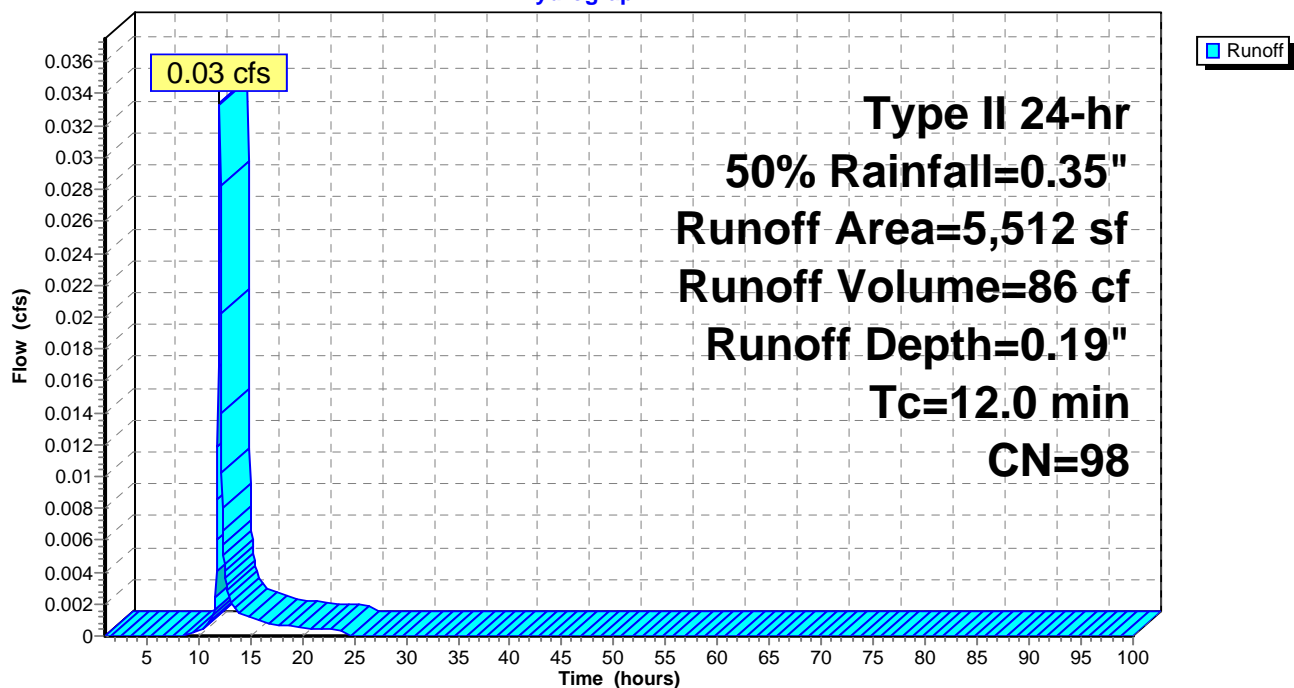
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
5,512	98	Paved parking, HSG D
5,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9B: Area 9B**

Hydrograph





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Type II 24-hr 50% Rainfall=0.35"

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**Summary for Subcatchment 15: Area 15**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 47 cf, Depth= 0.19"

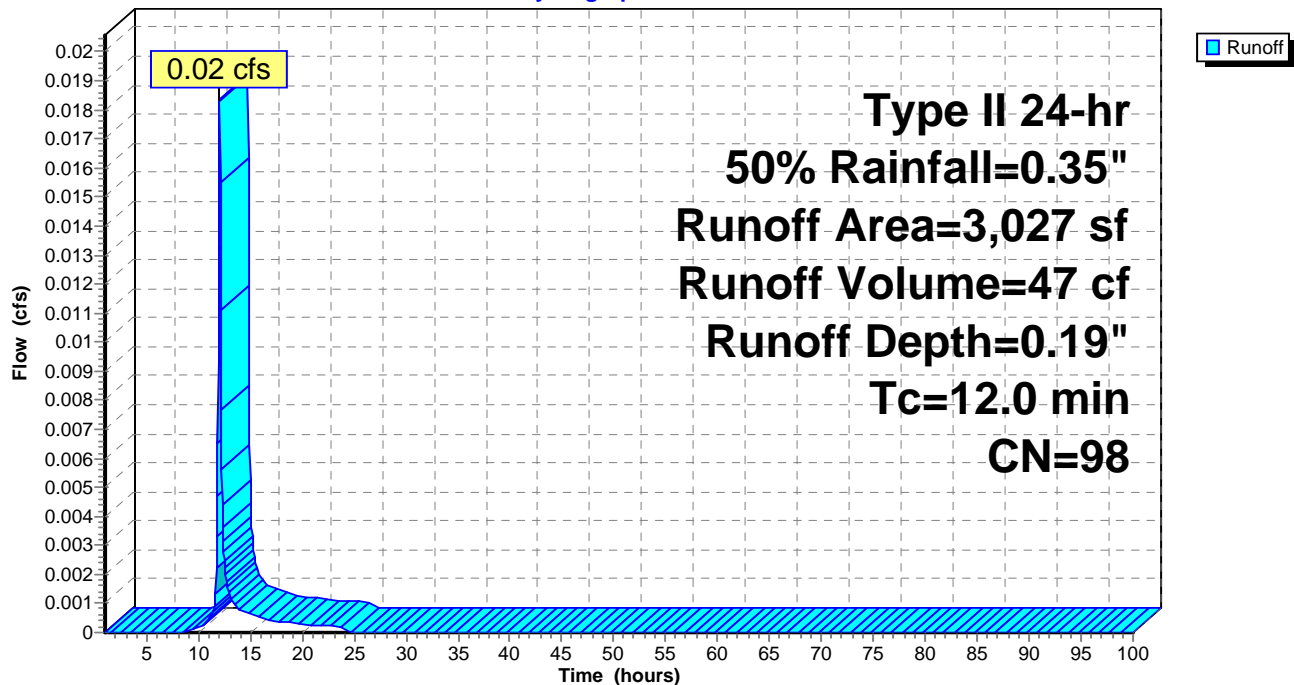
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
76	80	>75% Grass cover, Good, HSG D
2,951	98	Paved parking, HSG D
3,027	98	Weighted Average
76		2.51% Pervious Area
2,951		97.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 15: Area 15**

Hydrograph



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Type II 24-hr 50% Rainfall=0.35"

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**Summary for Subcatchment 15A: Area 15A**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 58 cf, Depth= 0.19"

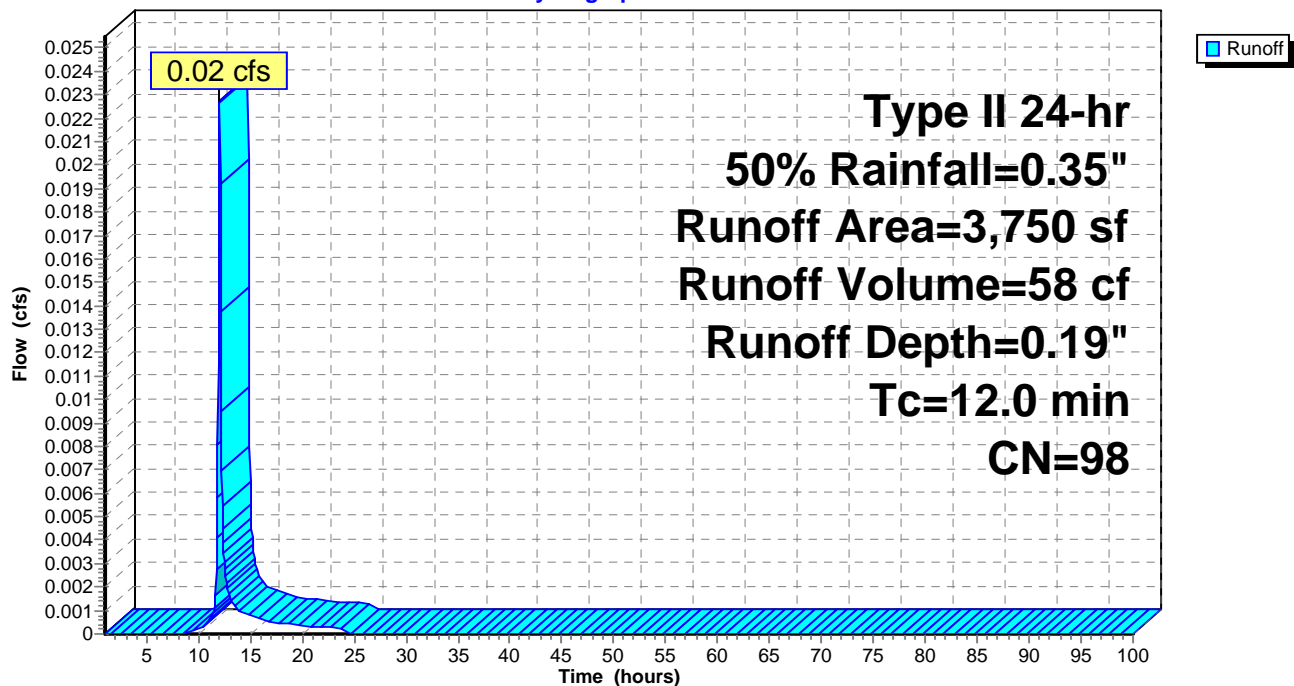
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
3,750	98	Paved parking, HSG D
3,750		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 15A: Area 15A**

Hydrograph



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Type II 24-hr 50% Rainfall=0.35"

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**Summary for Subcatchment 15B: Area 15B**

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 261 cf, Depth= 0.19"

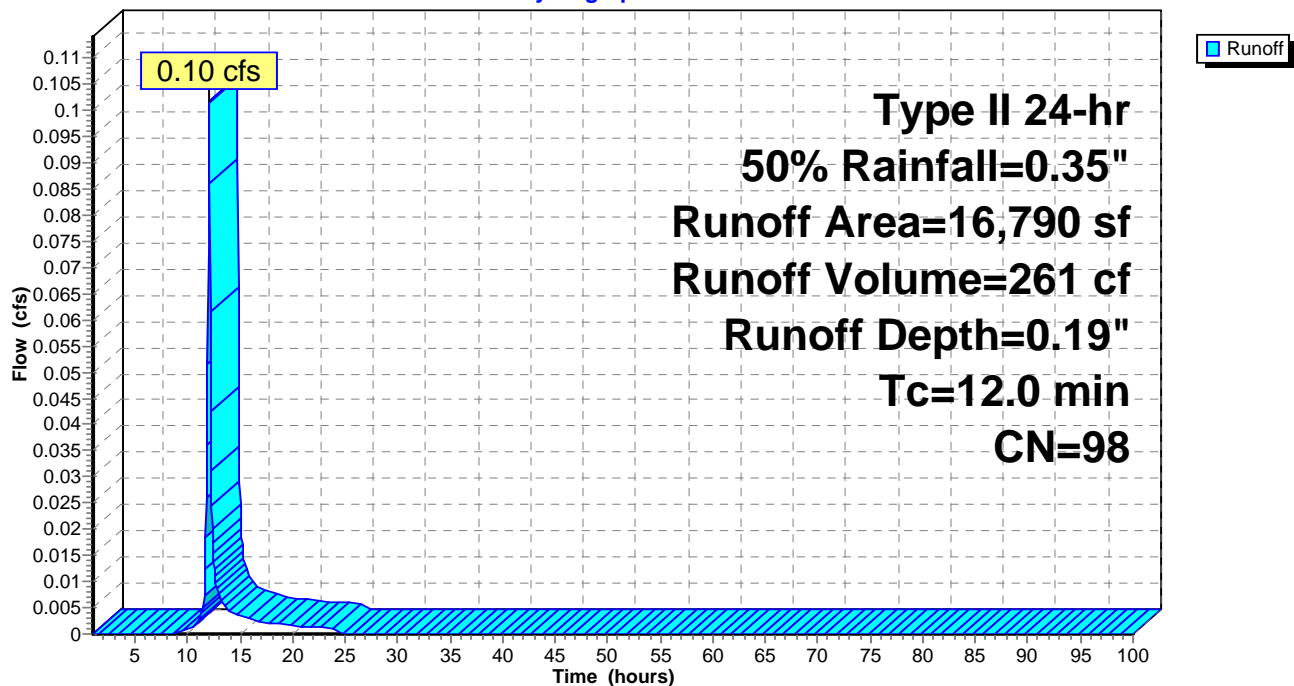
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
16,790	98	Paved parking, HSG D
16,790		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 15B: Area 15B**

Hydrograph



**Summary for Subcatchment 16: Area 16**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 42 cf, Depth= 0.19"

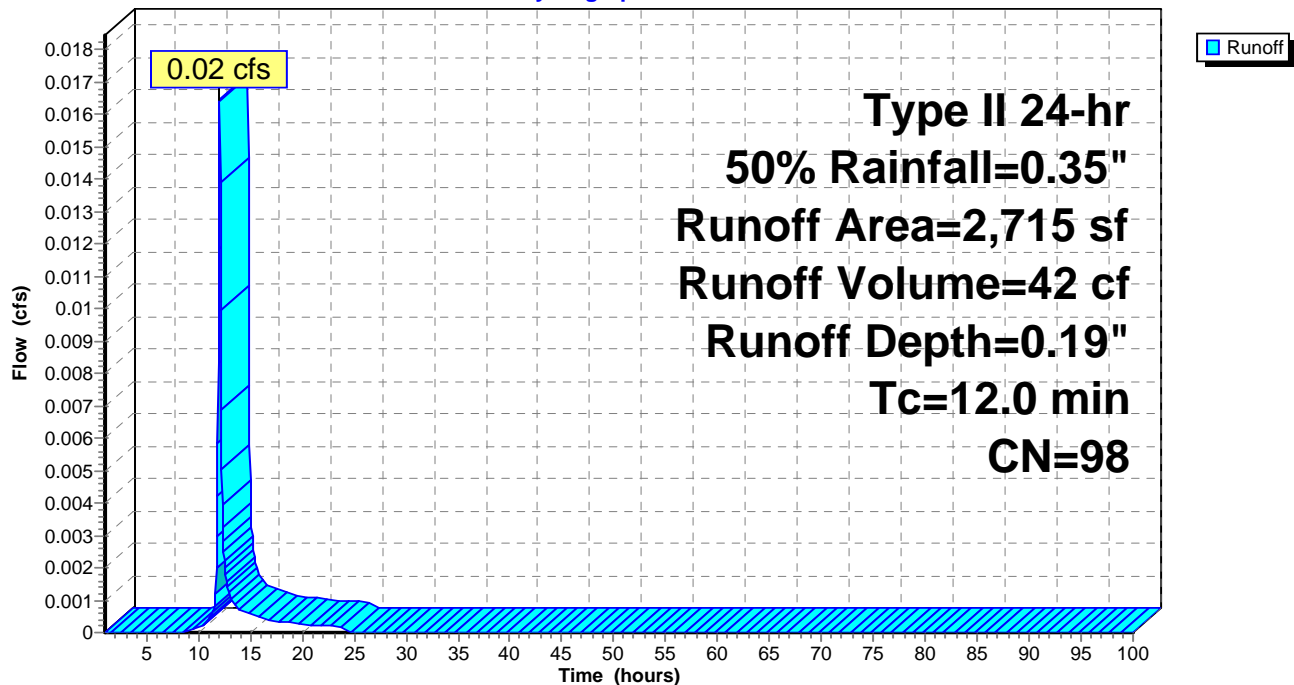
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
43	80	>75% Grass cover, Good, HSG D
2,672	98	Paved parking, HSG D
2,715	98	Weighted Average
43		1.58% Pervious Area
2,672		98.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 16: Area 16**

Hydrograph



**Summary for Pond 84": 84" TRUNK SEWER**

Inflow Area = 112,891 sf, 98.39% Impervious, Inflow Depth = 0.05" for 50% event  
 Inflow = 0.22 cfs @ 12.04 hrs, Volume= 516 cf  
 Outflow = 0.22 cfs @ 12.04 hrs, Volume= 519 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.22 cfs @ 12.04 hrs, Volume= 519 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 590.21' @ 12.04 hrs

Flood Elev= 647.22'

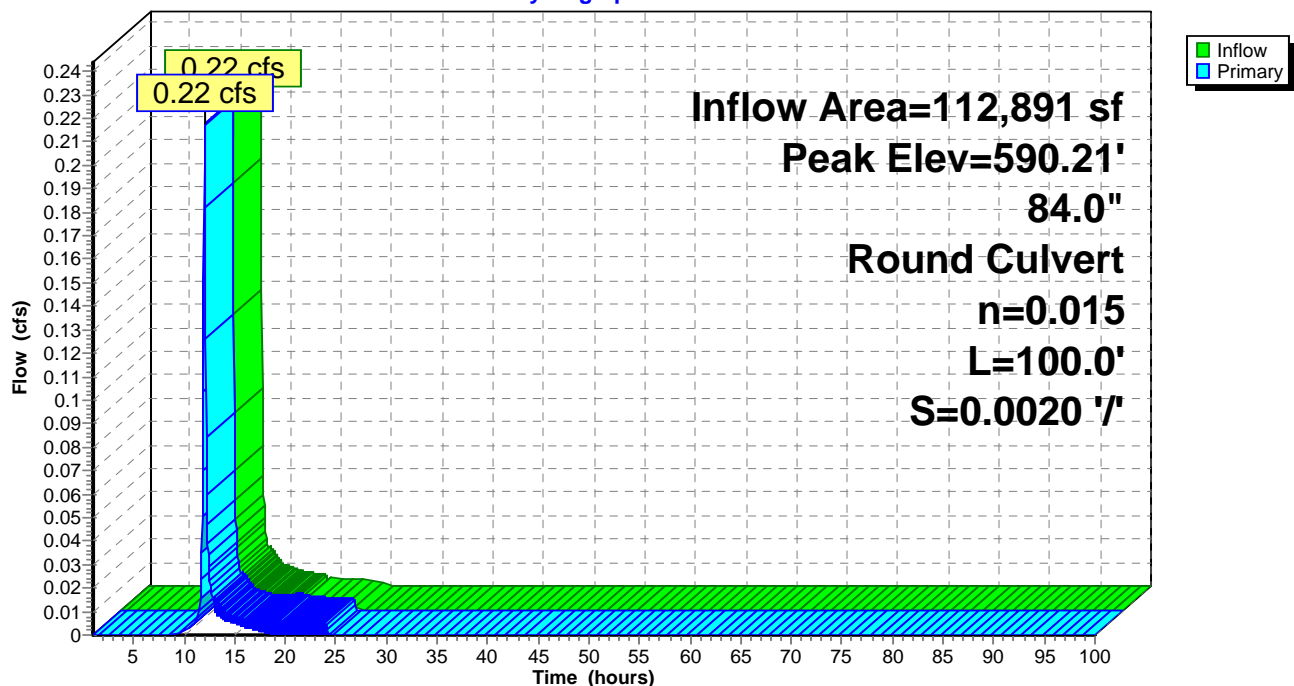
Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	<b>84.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 38.48 sf

**Primary OutFlow** Max=0.21 cfs @ 12.04 hrs HW=590.20' (Free Discharge)

1=Culvert (Barrel Controls 0.21 cfs @ 1.02 fps)

**Pond 84": 84" TRUNK SEWER**

Hydrograph



**Summary for Pond DI 868: DI #868**

[80] Warning: Exceeded Pond DS 6 by 0.27' @ 15.55 hrs (0.11 cfs 35,875 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth = 0.08" for 50% event  
 Inflow = 0.06 cfs @ 12.04 hrs, Volume= 148 cf  
 Outflow = 0.06 cfs @ 12.04 hrs, Volume= 149 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.06 cfs @ 12.04 hrs, Volume= 149 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.69' @ 12.04 hrs

Flood Elev= 647.22'

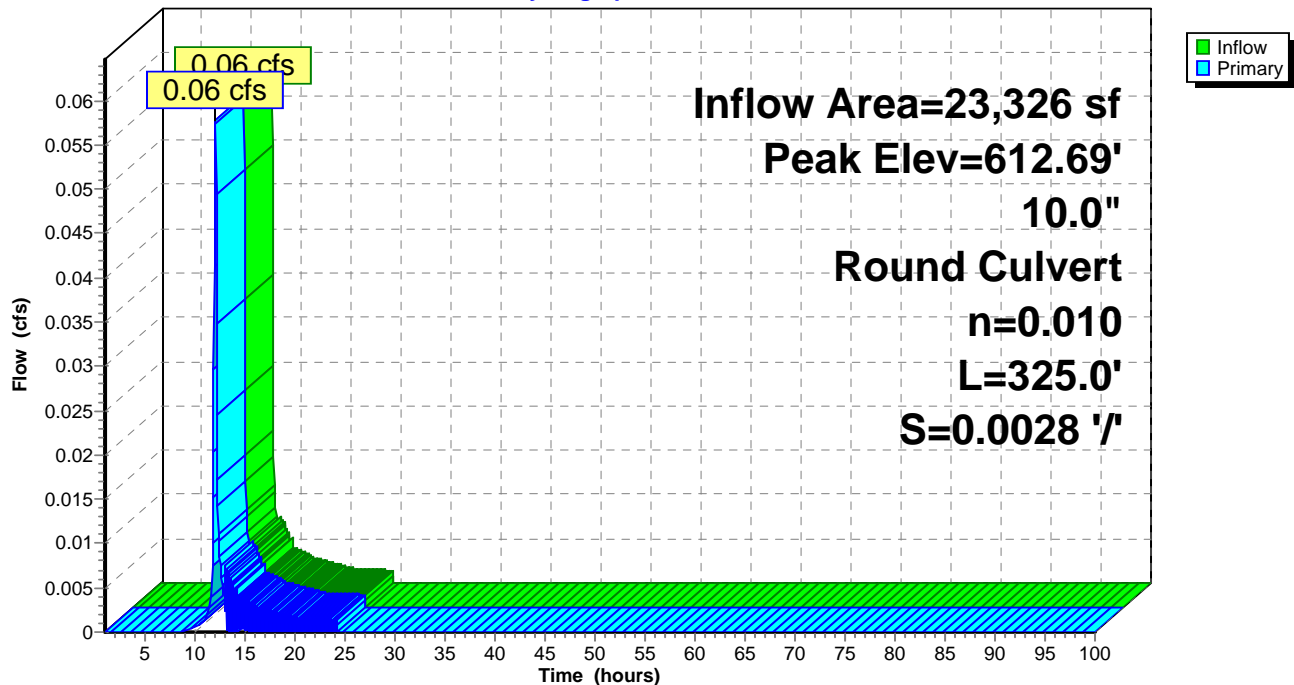
Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.06 cfs @ 12.04 hrs HW=612.69' TW=590.20' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.06 cfs @ 1.32 fps)

**Pond DI 868: DI #868**

Hydrograph



**Summary for Pond DS 10: Planter PB-8A**

Inflow Area = 2,841 sf, 96.16% Impervious, Inflow Depth = 0.14" for 50% event  
 Inflow = 0.01 cfs @ 12.04 hrs, Volume= 33 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.64' @ 24.70 hrs Surf.Area= 391 sf Storage= 33 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.43'	638 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.43	391	0.0	0	0
613.75	391	40.0	519	519
613.76	141	20.0	1	520
615.09	141	50.0	94	614
615.26	141	100.0	24	638

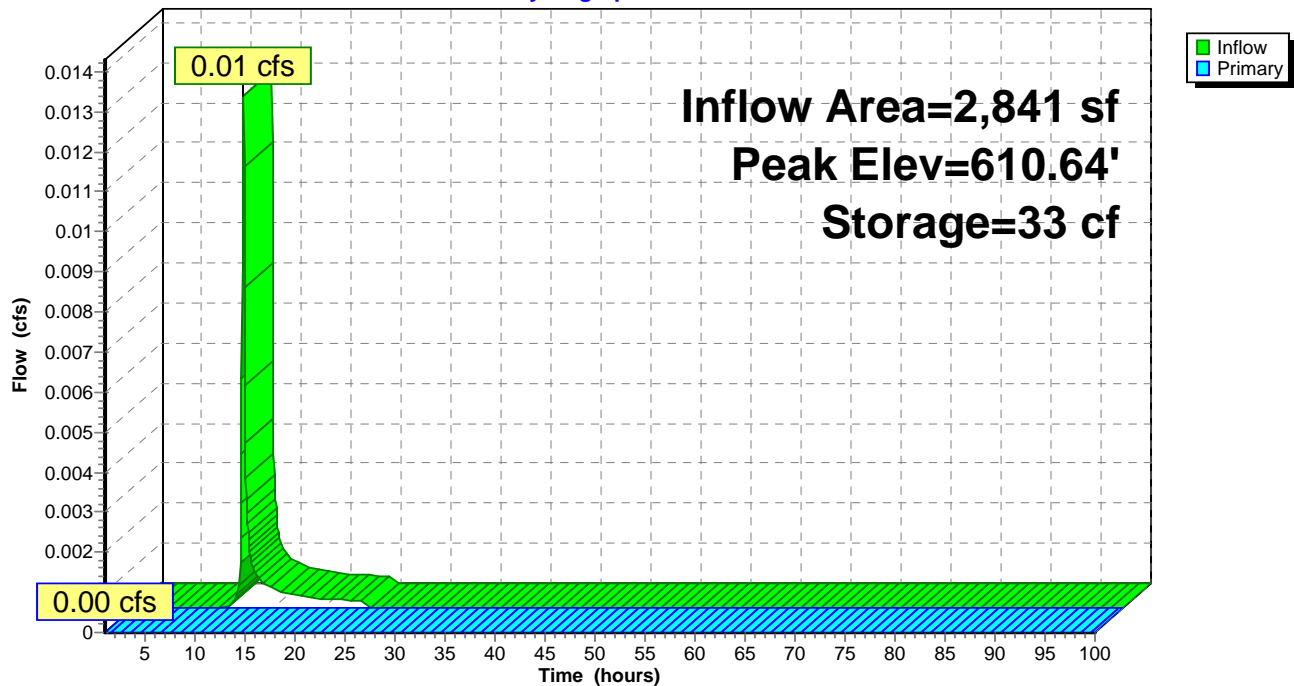
Device	Routing	Invert	Outlet Devices
#1	Primary	611.95'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.95' / 611.88' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.76'	<b>6.0" Round Culvert</b> L= 28.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.76' / 610.76' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.43'	<b>1.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.25'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.43' TW=612.27' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

**Pond DS 10: Planter PB-8A**

Hydrograph





**Summary for Pond DS 11: Planter PB-9A**

Inflow Area = 2,159 sf, 94.58% Impervious, Inflow Depth = 0.14" for 50% event  
 Inflow = 0.01 cfs @ 12.04 hrs, Volume= 25 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.28' @ 24.70 hrs Surf.Area= 391 sf Storage= 25 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.12'	664 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.12	391	0.0	0	0
613.61	391	40.0	546	546
613.62	141	20.0	1	546
614.95	141	50.0	94	640
615.12	141	100.0	24	664

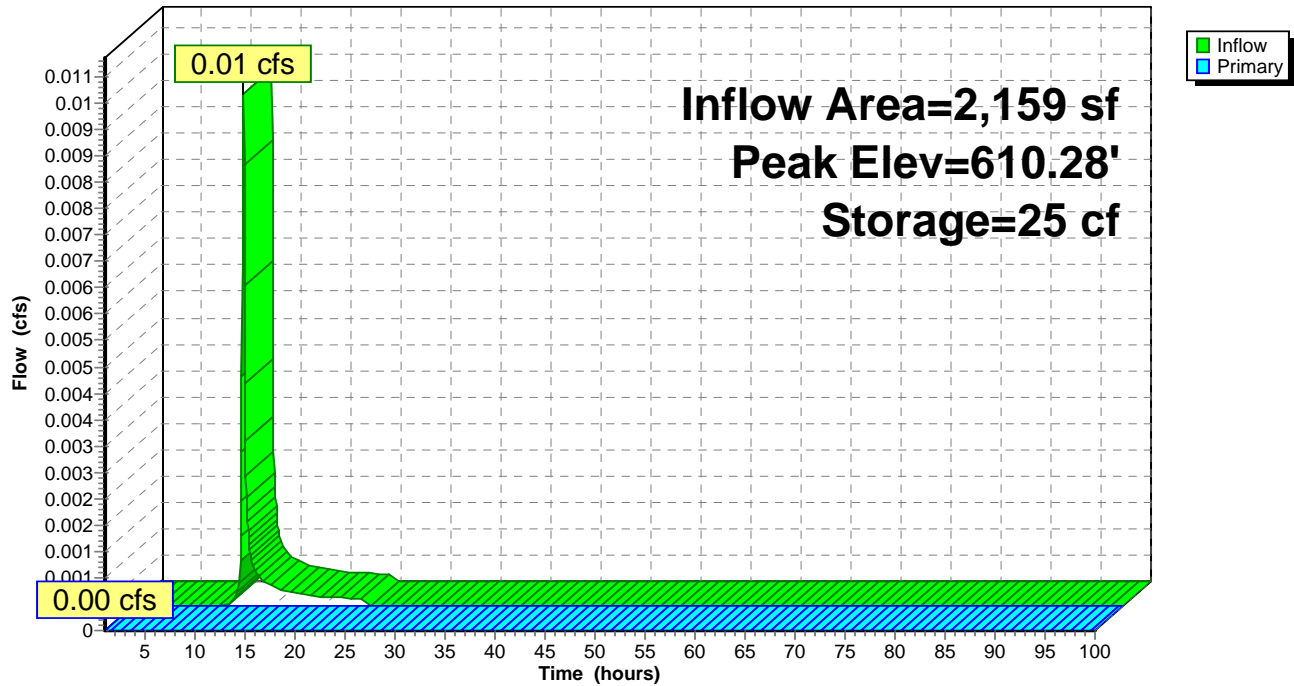
Device	Routing	Invert	Outlet Devices
#1	Primary	611.91'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.91' / 611.84' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.62'	<b>6.0" Round Culvert</b> L= 27.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.62' / 610.62' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.12'	<b>1.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.11'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.12' TW=612.27' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 11: Planter PB-9A

Hydrograph



## Summary for Pond DS 14: DS 14

Inflow Area = 19,614 sf, 98.41% Impervious, Inflow Depth = 0.17" for 50% event  
 Inflow = 0.11 cfs @ 12.04 hrs, Volume= 280 cf  
 Outflow = 0.11 cfs @ 12.04 hrs, Volume= 280 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.09 cfs @ 12.04 hrs, Volume= 265 cf  
 Secondary = 0.02 cfs @ 12.04 hrs, Volume= 15 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.99' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.80'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.80' / 612.75' S= 0.0125 ' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	612.90'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.90' / 612.83' S= 0.0117 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

**Primary OutFlow** Max=0.09 cfs @ 12.04 hrs HW=612.99' TW=610.18' (Dynamic Tailwater)

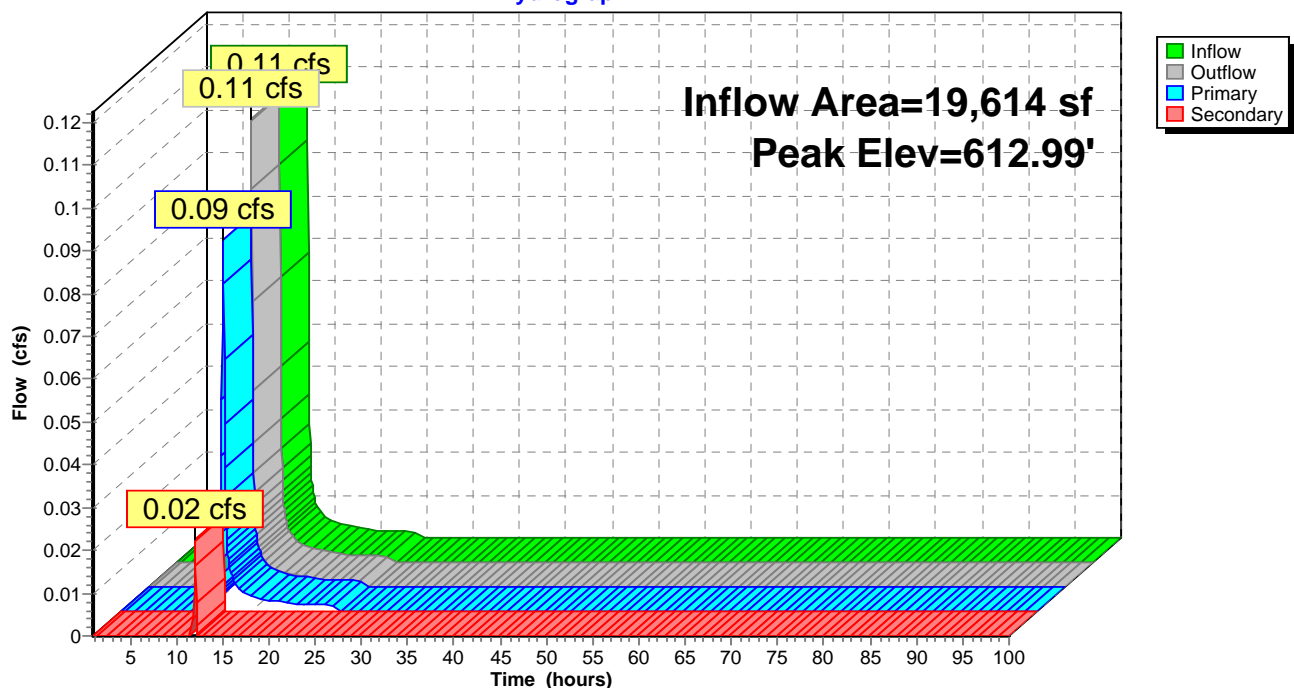
↑**1=Culvert** (Barrel Controls 0.09 cfs @ 1.85 fps)

**Secondary OutFlow** Max=0.02 cfs @ 12.04 hrs HW=612.99' TW=612.66' (Dynamic Tailwater)

↑**2=Culvert** (Barrel Controls 0.02 cfs @ 1.36 fps)

## Pond DS 14: DS 14

## Hydrograph



**Summary for Pond DS 15: Planter PB-4A**

Inflow Area = 19,614 sf, 98.41% Impervious, Inflow Depth = 0.16" for 50% event  
 Inflow = 0.09 cfs @ 12.04 hrs, Volume= 265 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.63' @ 24.70 hrs Surf.Area= 1,055 sf Storage= 265 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.00'	1,803 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.00	1,055	0.0	0	0
613.49	1,055	40.0	1,473	1,473
613.50	394	20.0	1	1,474
614.83	394	50.0	262	1,736
615.00	394	100.0	67	1,803

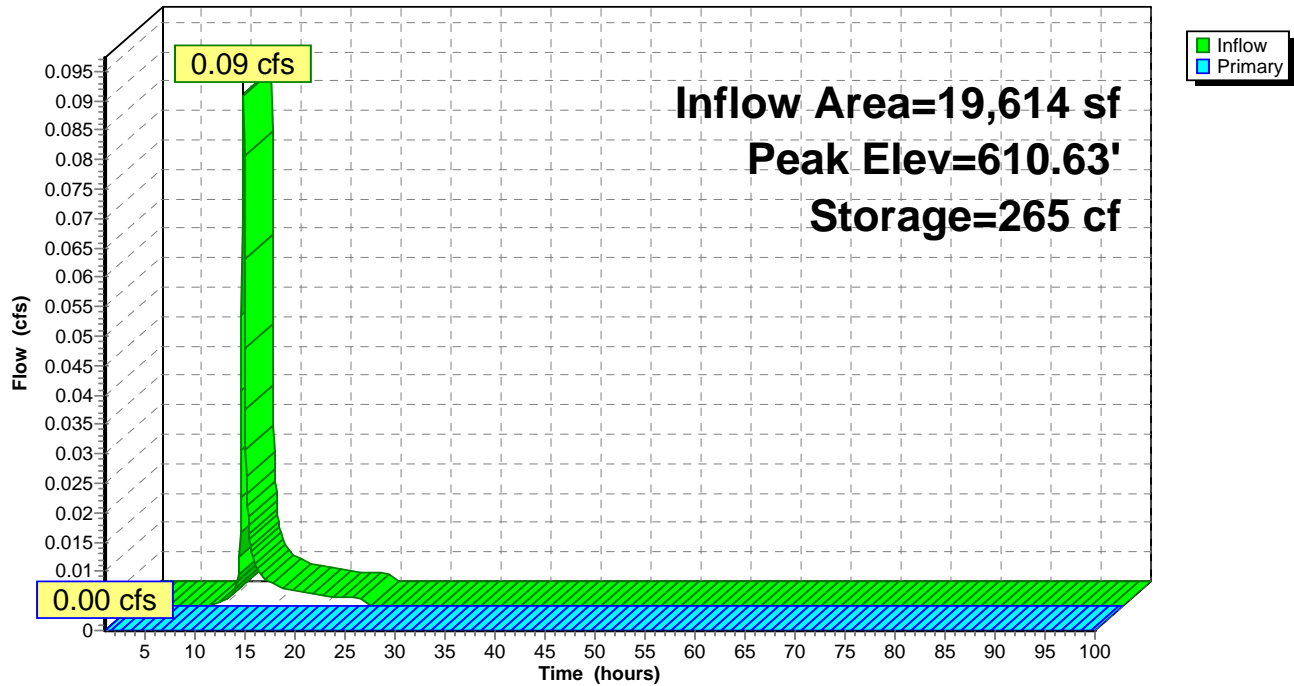
Device	Routing	Invert	Outlet Devices
#1	Primary	611.93'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.93' / 611.86' S= 0.0117 ' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.50'	<b>6.0" Round Culvert</b> L= 61.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.50' / 610.50' S= 0.0000 ' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.00'	<b>11.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.99'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.00' TW=612.54' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.27 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

Pond DS 15: Planter PB-4A

Hydrograph



**Summary for Pond DS 2: Planter PB-1A**

Inflow Area = 5,276 sf, 95.77% Impervious, Inflow Depth = 0.14" for 50% event  
 Inflow = 0.02 cfs @ 12.04 hrs, Volume= 61 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.06' @ 24.70 hrs Surf.Area= 273 sf Storage= 61 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.50'	610 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.50	273	0.0	0	0
613.99	273	40.0	381	381
614.00	273	20.0	1	382
615.33	273	50.0	182	563
615.50	273	100.0	46	610

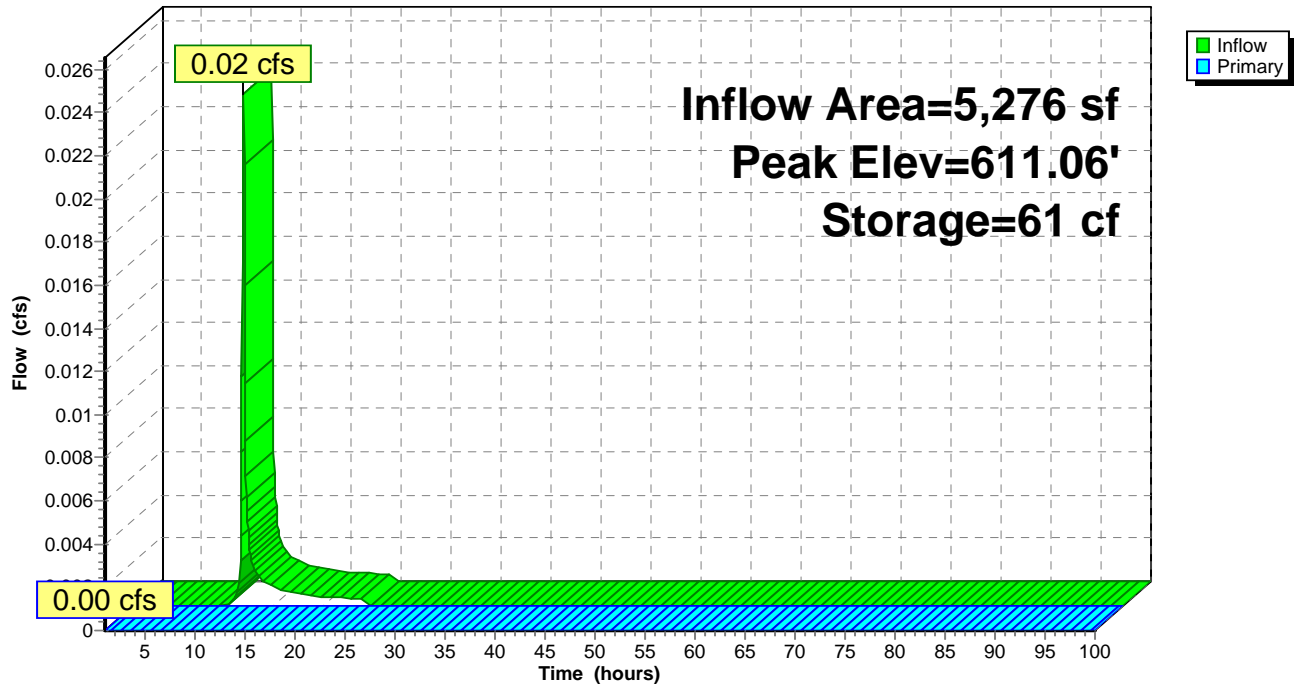
Device	Routing	Invert	Outlet Devices
#1	Primary	612.64'	<b>6.0" Round Culvert</b> L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.64' / 612.59' S= 0.0125 ' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.12'	<b>6.0" Round Culvert</b> L= 39.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.12' / 611.12' S= 0.0000 ' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.50'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.49'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.50' TW=590.00' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

Pond DS 2: Planter PB-1A

Hydrograph



**Summary for Pond DS 28: DS 28**

Inflow Area = 9,492 sf, 98.75% Impervious, Inflow Depth = 0.07" for 50% event  
 Inflow = 0.02 cfs @ 12.04 hrs, Volume= 58 cf  
 Outflow = 0.02 cfs @ 12.04 hrs, Volume= 58 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.02 cfs @ 12.04 hrs, Volume= 58 cf

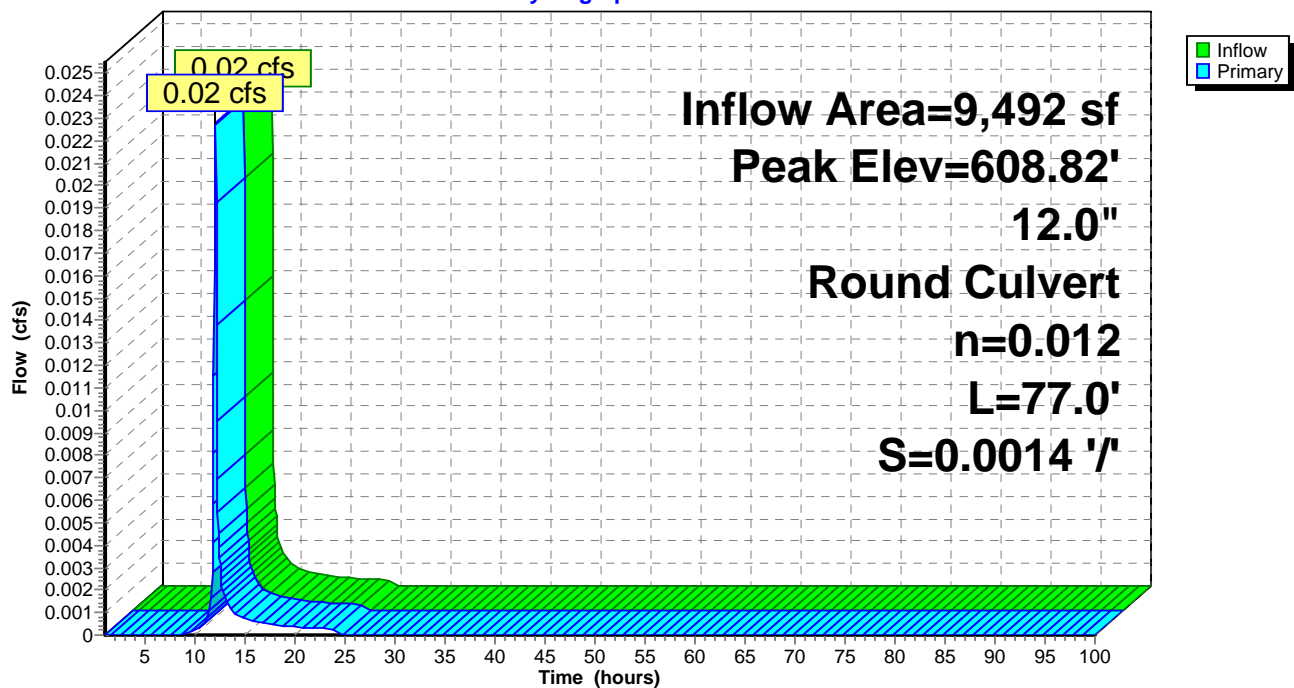
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 608.82' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.02 cfs @ 12.04 hrs HW=608.82' TW=590.20' (Dynamic Tailwater)  
 1=Culvert (Barrel Controls 0.02 cfs @ 0.71 fps)

**Pond DS 28: DS 28****Hydrograph**



**Summary for Pond DS 29: Planter PB-1B**

Inflow Area = 5,742 sf, 97.93% Impervious, Inflow Depth = 0.10" for 50% event  
 Inflow = 0.02 cfs @ 12.04 hrs, Volume= 47 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.26' @ 24.70 hrs Surf.Area= 101 sf Storage= 47 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	609.10'	225 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
609.10	101	0.0	0	0
612.60	101	40.0	141	141
612.61	101	20.0	0	142
613.93	101	50.0	67	208
614.10	101	100.0	17	225

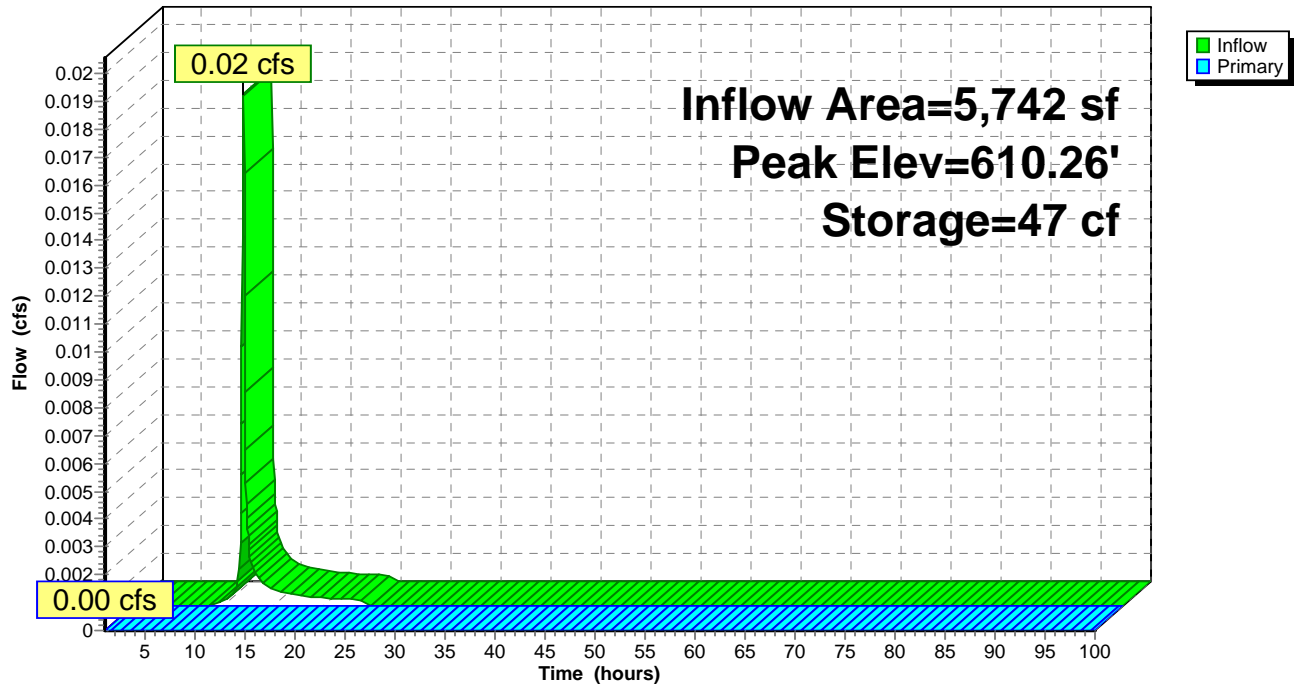
Device	Routing	Invert	Outlet Devices
#1	Primary	610.41'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.41' / 610.35' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.75'	<b>6.0" Round Culvert</b> L= 50.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 609.75' / 609.75' S= 0.0000 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	609.10'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.00'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=609.10' TW=608.71' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

Pond DS 29: Planter PB-1B

Hydrograph



### Summary for Pond DS 3: DS 3

Inflow Area = 34,149 sf, 98.47% Impervious, Inflow Depth = 0.18" for 50% event  
 Inflow = 0.18 cfs @ 12.07 hrs, Volume= 514 cf  
 Outflow = 0.18 cfs @ 12.07 hrs, Volume= 515 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.18 cfs @ 12.07 hrs, Volume= 515 cf  
 Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.90' @ 12.07 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.60'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.60' / 612.55' S= 0.0125 ' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	613.60'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 613.60' / 613.55' S= 0.0083 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

**Primary OutFlow** Max=0.18 cfs @ 12.07 hrs HW=612.89' TW=610.77' (Dynamic Tailwater)

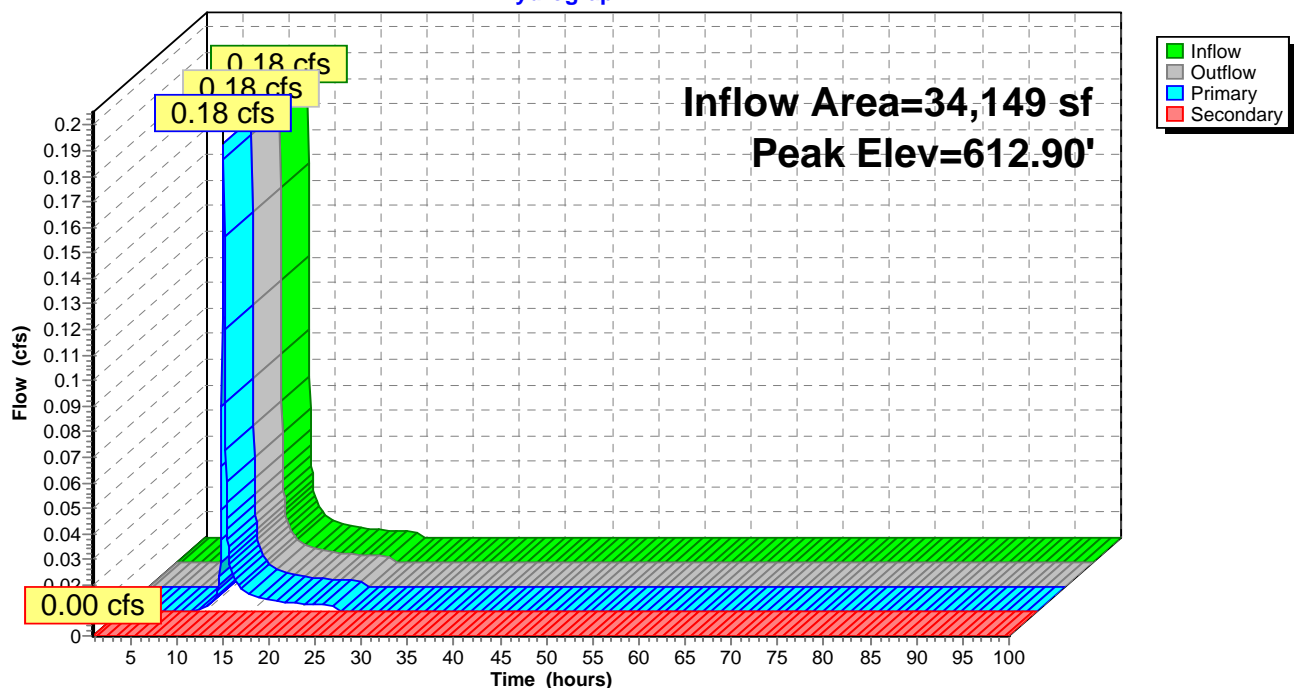
↑**1=Culvert** (Barrel Controls 0.18 cfs @ 2.16 fps)

**Secondary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=612.60' TW=590.00' (Dynamic Tailwater)

↑**2=Culvert** ( Controls 0.00 cfs)

### Pond DS 3: DS 3

Hydrograph



**Summary for Pond DS 30: Planter PB-2B**

Inflow Area = 2,715 sf, 98.42% Impervious, Inflow Depth = 0.19" for 50% event  
 Inflow = 0.02 cfs @ 12.04 hrs, Volume= 42 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.08' @ 24.70 hrs Surf.Area= 49 sf Storage= 42 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	608.93'	109 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.93	49	0.0	0	0
612.43	49	40.0	69	69
612.44	49	20.0	0	69
613.76	49	50.0	32	101
613.93	49	100.0	8	109

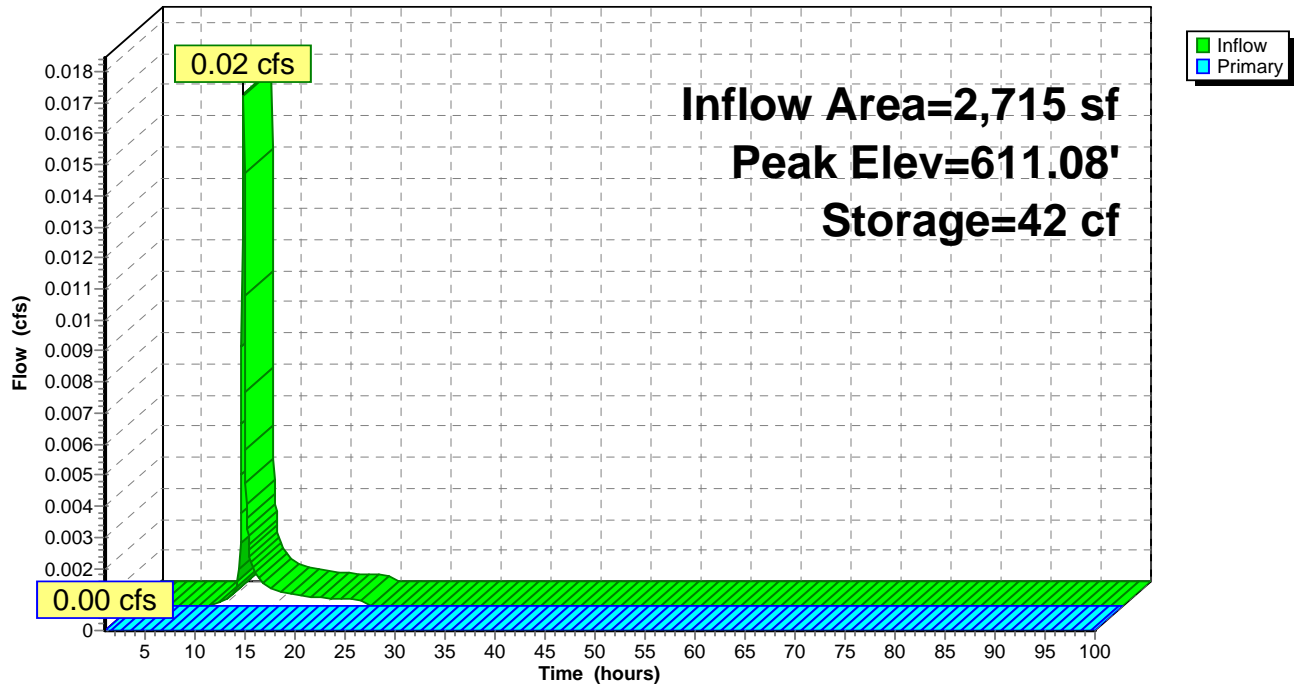
Device	Routing	Invert	Outlet Devices
#1	Primary	611.87'	<b>6.0" Round Culvert</b> L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.87' / 611.20' S= 0.0114 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.43'	<b>6.0" Round Culvert</b> L= 7.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.43' / 609.43' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.93'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.92'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=608.93' TW=609.10' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

**Pond DS 30: Planter PB-2B**

Hydrograph



**Summary for Pond DS 4: Planter PB-2A**

Inflow Area = 34,149 sf, 98.47% Impervious, Inflow Depth = 0.18" for 50% event  
 Inflow = 0.18 cfs @ 12.07 hrs, Volume= 515 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.69' @ 24.90 hrs Surf.Area= 990 sf Storage= 515 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.39'	1,715 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.39	990	0.0	0	0
613.89	990	40.0	1,386	1,386
613.90	395	20.0	1	1,387
615.22	395	50.0	261	1,648
615.39	395	100.0	67	1,715

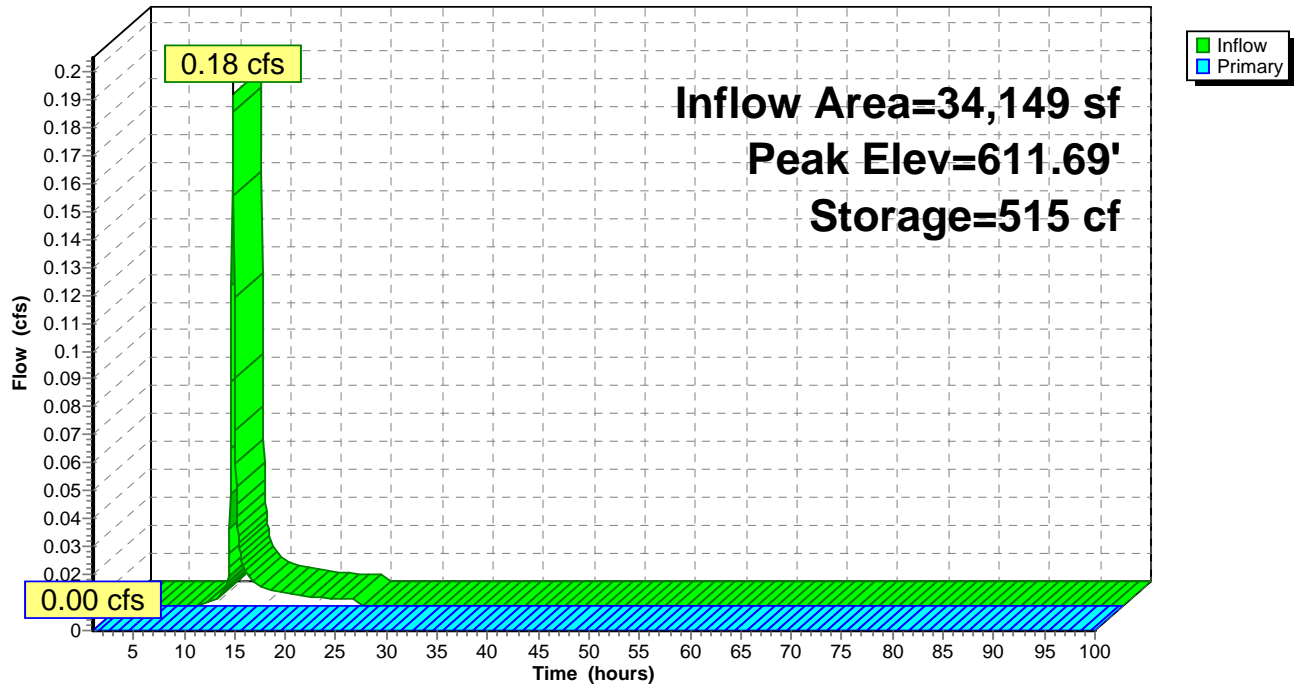
Device	Routing	Invert	Outlet Devices
#1	Primary	612.48'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.48' / 612.41' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.89'	<b>6.0" Round Culvert</b> L= 60.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.89' / 610.89' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.39'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.37'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.39' TW=612.54' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 4: Planter PB-2A

Hydrograph



**Summary for Pond DS 5: Planter PB-3A**

Inflow Area = 2,103 sf, 92.44% Impervious, Inflow Depth = 0.14" for 50% event  
 Inflow = 0.01 cfs @ 12.04 hrs, Volume= 24 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.50' @ 24.70 hrs Surf.Area= 195 sf Storage= 24 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.19'	435 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.19	195	0.0	0	0
613.68	195	40.0	272	272
613.69	195	20.0	0	273
615.02	195	50.0	130	402
615.19	195	100.0	33	435

Device	Routing	Invert	Outlet Devices
#1	Primary	612.37'	<b>6.0" Round Culvert</b> L= 5.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.37' / 612.30' S= 0.0127 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.61'	<b>6.0" Round Culvert</b> L= 28.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.61' / 610.61' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.19'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.18'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

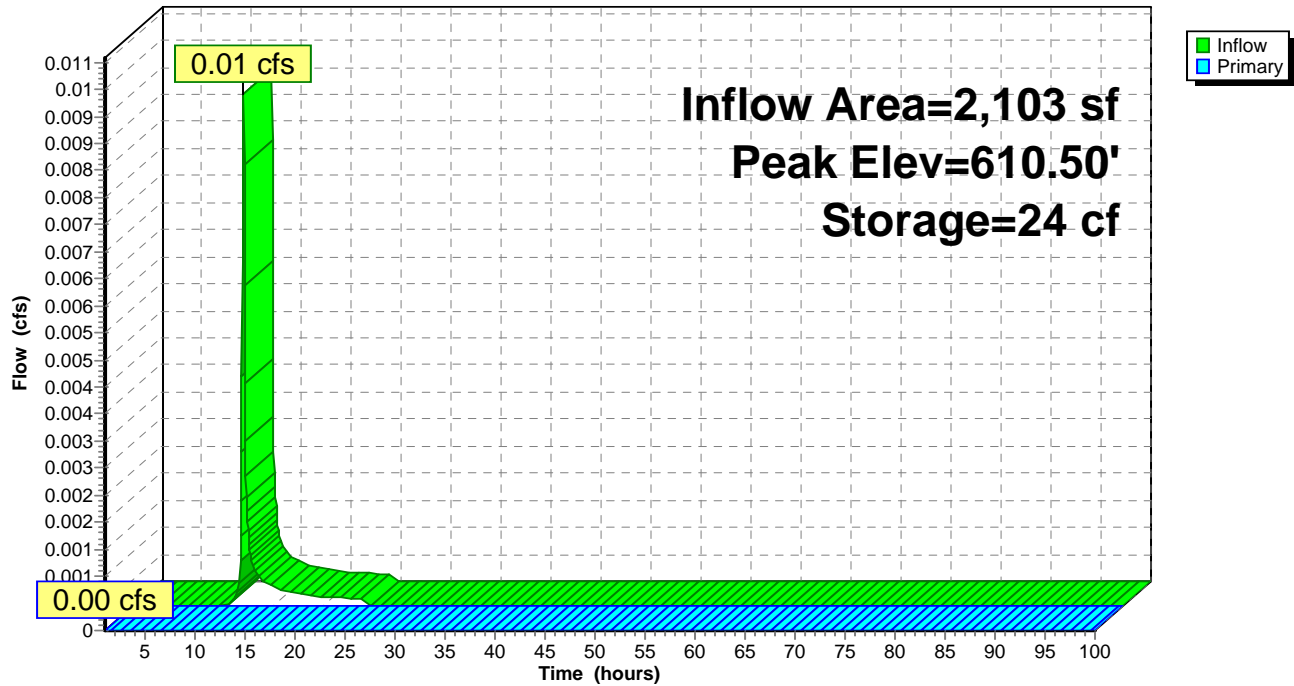
**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.19' TW=612.54' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)



## Pond DS 5: Planter PB-3A

Hydrograph



### Summary for Pond DS 6: DS 6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=113)

[80] Warning: Exceeded Pond DS 10 by 2.23' @ 12.00 hrs (0.01 cfs 3,226 cf)

[80] Warning: Exceeded Pond DS 11 by 2.55' @ 12.00 hrs (0.01 cfs 3,226 cf)

[80] Warning: Exceeded Pond DS 9 by 2.16' @ 12.00 hrs (0.01 cfs 254 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth = 0.08" for 50% event  
 Inflow = 0.06 cfs @ 12.04 hrs, Volume= 149 cf  
 Outflow = 0.06 cfs @ 12.04 hrs, Volume= 148 cf, Atten= 1%, Lag= 0.0 min  
 Primary = 0.06 cfs @ 12.04 hrs, Volume= 148 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.70' @ 12.04 hrs

Flood Elev= 647.22'

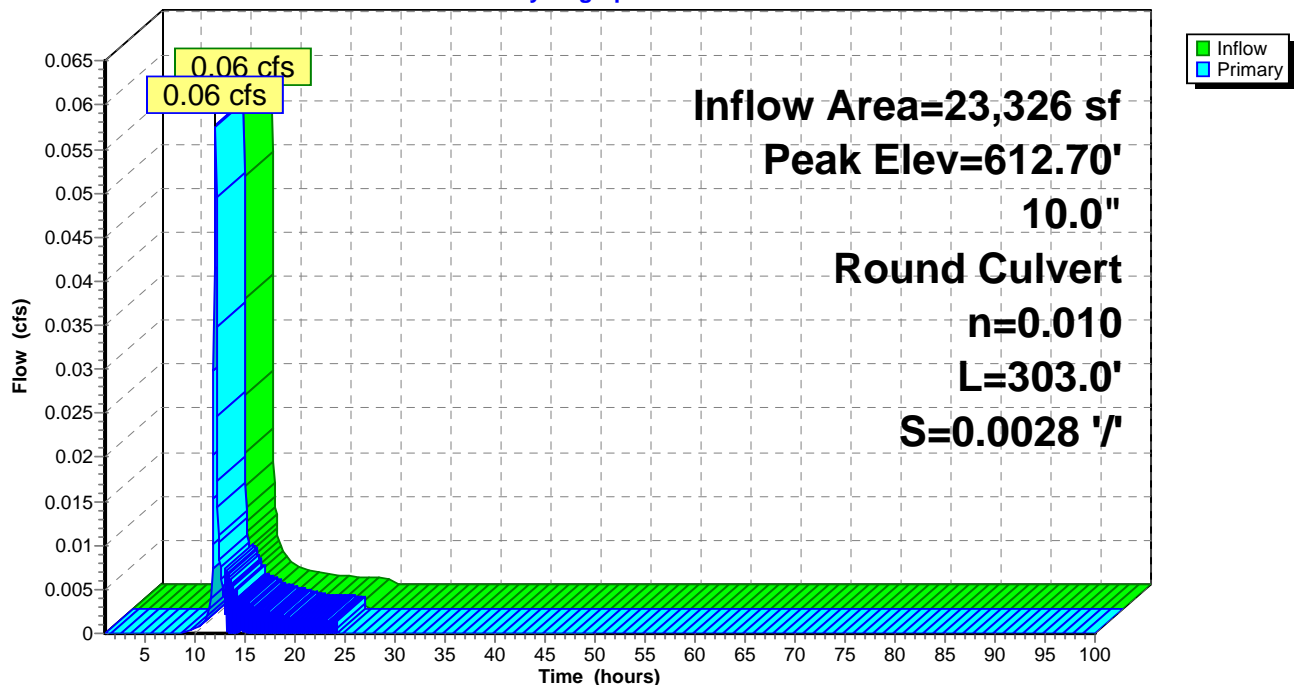
Device	Routing	Invert	Outlet Devices
#1	Primary	612.27'	<b>10.0" Round Culvert</b> L= 303.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.27' / 611.42' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.06 cfs @ 12.04 hrs HW=612.70' TW=612.69' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 0.06 cfs @ 0.29 fps)

### Pond DS 6: DS 6

Hydrograph



**Summary for Pond DS 7: Planter PB-5A**

Inflow Area = 3,711 sf, 98.14% Impervious, Inflow Depth = 0.19" for 50% event  
 Inflow = 0.02 cfs @ 12.04 hrs, Volume= 58 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.41' @ 24.70 hrs Surf.Area= 234 sf Storage= 58 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.79'	397 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.79	234	0.0	0	0
614.28	234	40.0	327	327
614.29	84	20.0	0	327
615.62	84	50.0	56	383
615.79	84	100.0	14	397

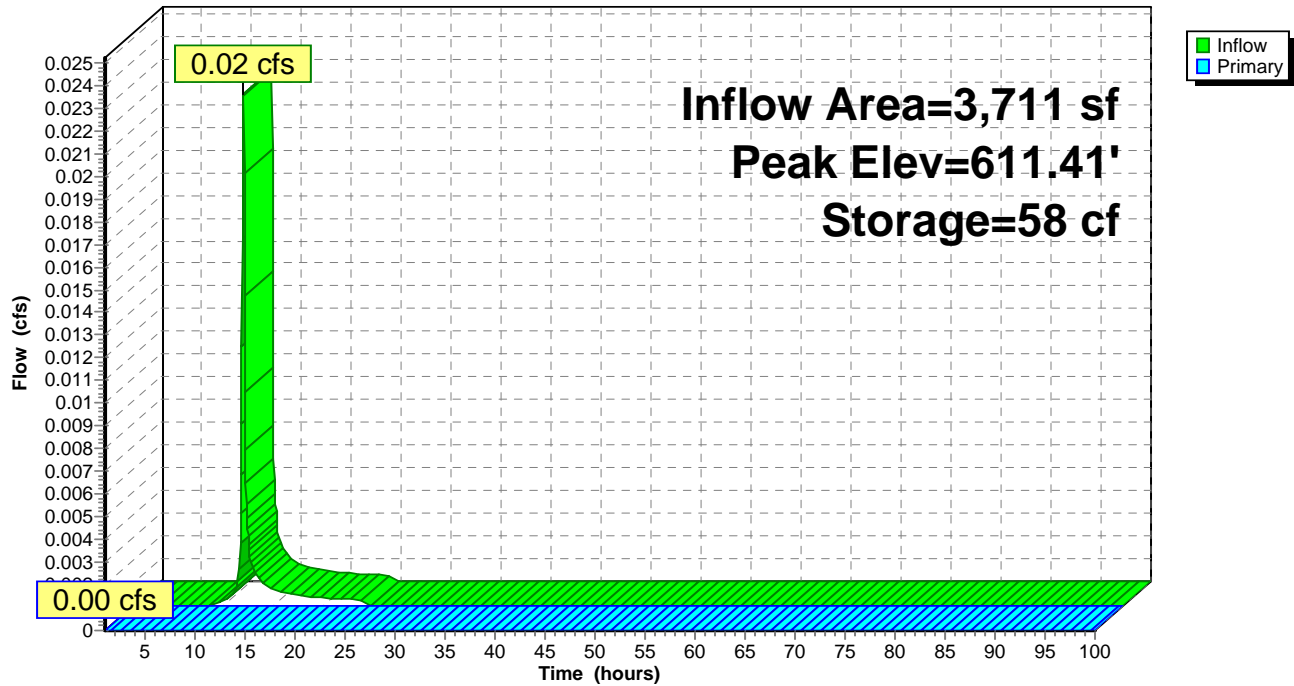
Device	Routing	Invert	Outlet Devices
#1	Primary	613.04'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.29'	<b>6.0" Round Culvert</b> L= 15.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.29' / 611.29' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.79'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.60'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.79' TW=612.27' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

Pond DS 7: Planter PB-5A

Hydrograph



**Summary for Pond DS 9: Planter PB-7A**

Inflow Area = 3,275 sf, 96.52% Impervious, Inflow Depth = 0.14" for 50% event  
 Inflow = 0.01 cfs @ 12.04 hrs, Volume= 38 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.73' @ 24.70 hrs Surf.Area= 391 sf Storage= 38 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.49'	665 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.49	391	0.0	0	0
613.99	391	40.0	547	547
614.00	141	20.0	1	548
615.32	141	50.0	93	641
615.49	141	100.0	24	665

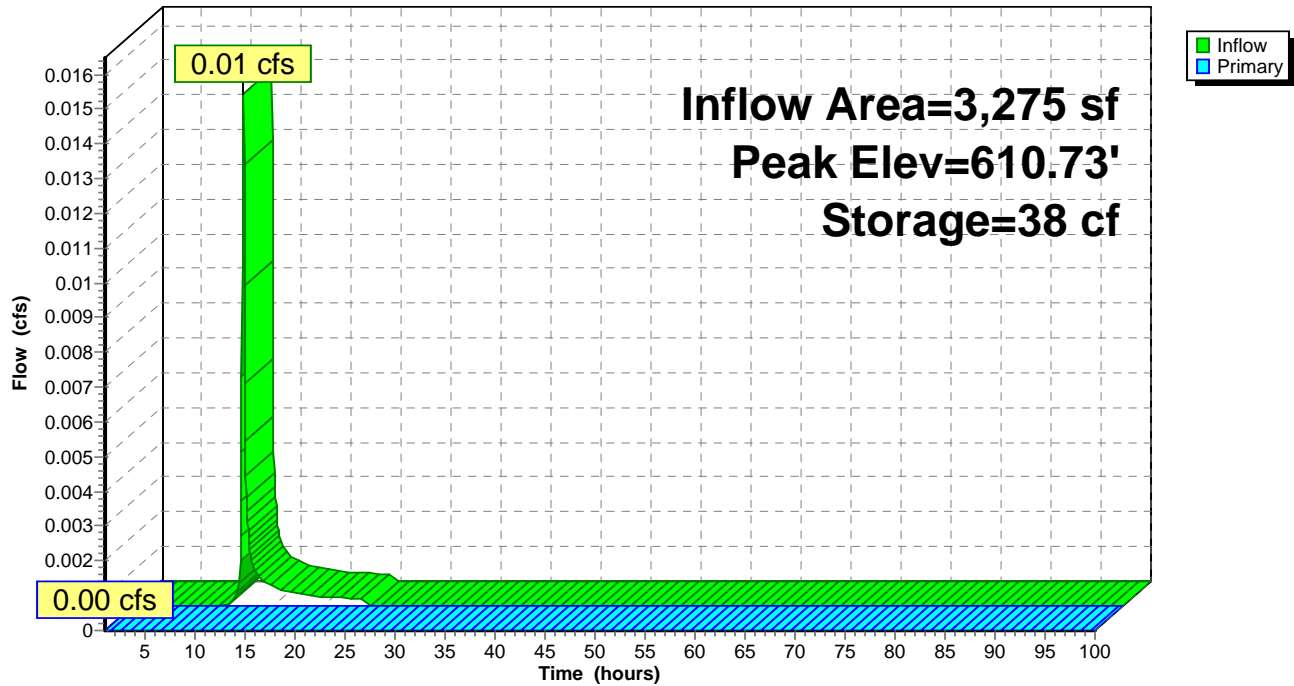
Device	Routing	Invert	Outlet Devices
#1	Primary	612.30'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.30' / 612.23' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.99'	<b>6.0" Round Culvert</b> L= 28.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.99' / 610.99' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.49'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.48'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.49' TW=612.27' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

Pond DS 9: Planter PB-7A

Hydrograph



## Summary for Pond DS-1: DS 1

[80] Warning: Exceeded Pond DS 15 by 2.54' @ 8.90 hrs (0.27 cfs 95,741 cf)

[80] Warning: Exceeded Pond DS 4 by 2.15' @ 8.40 hrs (0.01 cfs 2,450 cf)

[80] Warning: Exceeded Pond DS 5 by 2.40' @ 12.00 hrs (0.00 cfs 483 cf)

Inflow Area = 58,007 sf, 98.29% Impervious, Inflow Depth = 0.01" for 50% event  
 Inflow = 0.04 cfs @ 12.04 hrs, Volume= 48 cf  
 Outflow = 0.04 cfs @ 12.04 hrs, Volume= 49 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.04 cfs @ 12.04 hrs, Volume= 49 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.66' @ 12.04 hrs

Flood Elev= 647.22'

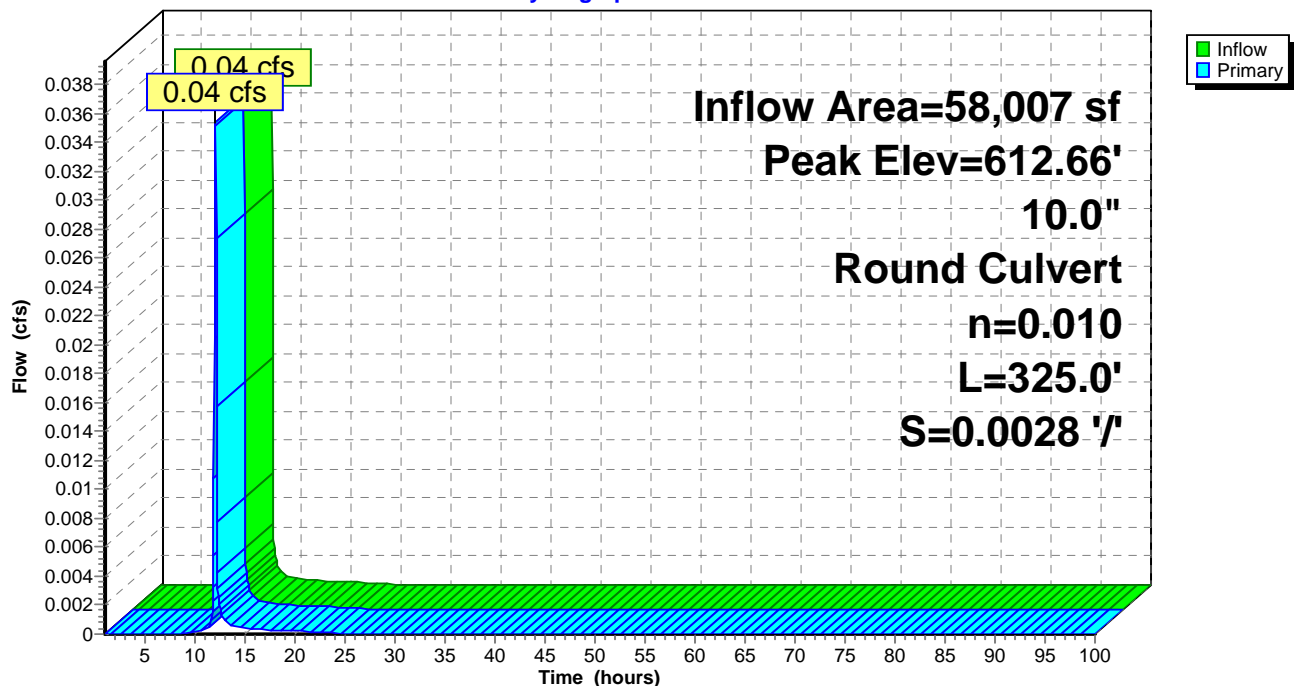
Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.03 cfs @ 12.04 hrs HW=612.66' TW=590.20' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 0.03 cfs @ 1.14 fps)

## Pond DS-1: DS 1

## Hydrograph



**Summary for Pond DS8: Planter PB-6A**

Inflow Area = 1,765 sf, 96.09% Impervious, Inflow Depth = 0.14" for 50% event  
 Inflow = 0.01 cfs @ 12.04 hrs, Volume= 20 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.85' @ 24.70 hrs Surf.Area= 235 sf Storage= 20 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.63'	399 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.63	235	0.0	0	0
614.13	235	40.0	329	329
614.14	84	20.0	0	329
615.46	84	50.0	55	385
615.63	84	100.0	14	399

Device	Routing	Invert	Outlet Devices
#1	Primary	613.04'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.13'	<b>6.0" Round Culvert</b> L= 14.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.13' / 611.13' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.63'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.62'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

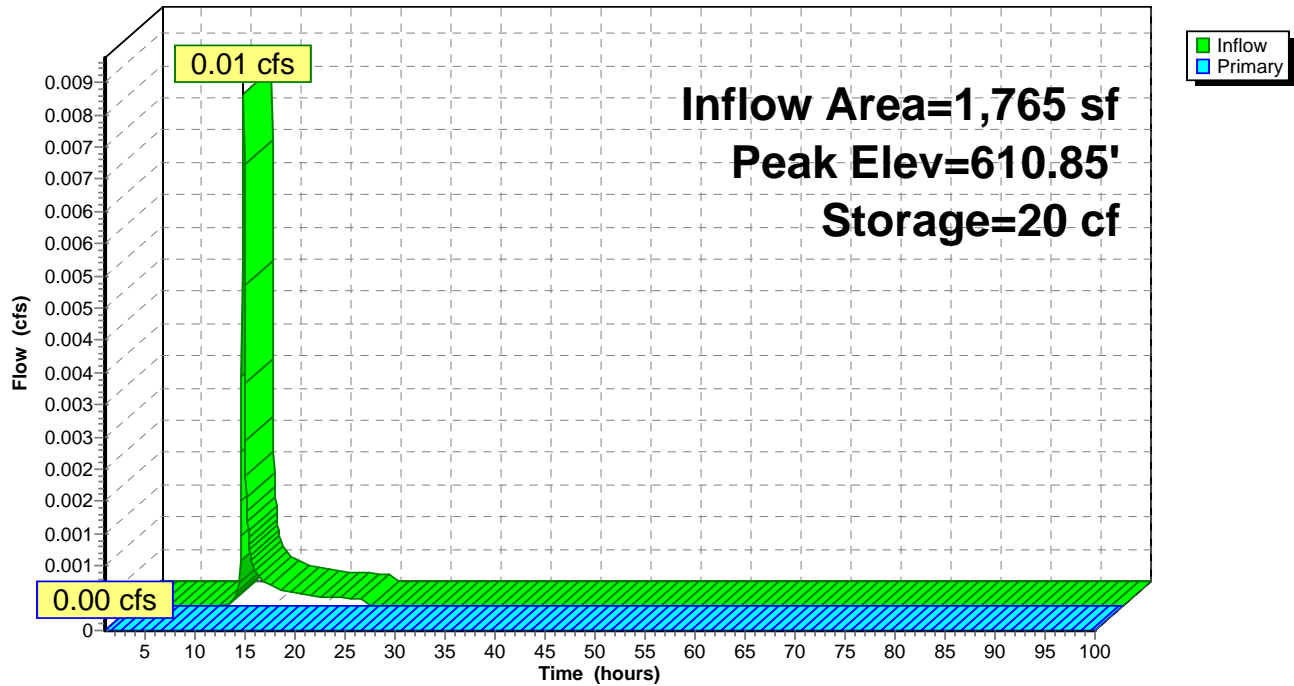
**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.63' TW=612.27' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)



**Pond DS8: Planter PB-6A**

Hydrograph



**Genesee St Final**

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*Type II 24-hr 75% Rainfall=0.50"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 1: Area 1</b>	Runoff Area=5,276 sf 95.77% Impervious Runoff Depth=0.26" Tc=12.0 min CN=97 Runoff=0.04 cfs 113 cf
<b>Subcatchment 1M: Area 1M M and T Lot</b>	Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=0.32" Tc=15.0 min CN=98 Runoff=0.28 cfs 800 cf
<b>Subcatchment 2: Area 2</b>	Runoff Area=3,939 sf 92.08% Impervious Runoff Depth=0.26" Tc=12.0 min CN=97 Runoff=0.03 cfs 84 cf
<b>Subcatchment 2M: Area 2M M and T Two</b>	Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=0.32" Tc=12.0 min CN=98 Runoff=0.14 cfs 356 cf
<b>Subcatchment 3: Area 3</b>	Runoff Area=2,103 sf 92.44% Impervious Runoff Depth=0.26" Tc=12.0 min CN=97 Runoff=0.02 cfs 45 cf
<b>Subcatchment 4: Area 4</b>	Runoff Area=6,163 sf 94.95% Impervious Runoff Depth=0.26" Tc=12.0 min CN=97 Runoff=0.05 cfs 132 cf
<b>Subcatchment 4B: Area 4B</b>	Runoff Area=2,141 sf 100.00% Impervious Runoff Depth=0.32" Tc=12.0 min CN=98 Runoff=0.02 cfs 57 cf
<b>Subcatchment 5: Area 5</b>	Runoff Area=3,711 sf 98.14% Impervious Runoff Depth=0.32" Tc=12.0 min CN=98 Runoff=0.04 cfs 98 cf
<b>Subcatchment 6: Area 6</b>	Runoff Area=1,765 sf 96.09% Impervious Runoff Depth=0.26" Tc=12.0 min CN=97 Runoff=0.01 cfs 38 cf
<b>Subcatchment 7: Area 7</b>	Runoff Area=3,275 sf 96.52% Impervious Runoff Depth=0.26" Tc=12.0 min CN=97 Runoff=0.03 cfs 70 cf
<b>Subcatchment 8: Area 8</b>	Runoff Area=2,841 sf 96.16% Impervious Runoff Depth=0.26" Tc=12.0 min CN=97 Runoff=0.02 cfs 61 cf
<b>Subcatchment 9: Area 9</b>	Runoff Area=2,159 sf 94.58% Impervious Runoff Depth=0.26" Tc=12.0 min CN=97 Runoff=0.02 cfs 46 cf
<b>Subcatchment 9A: Area 9A</b>	Runoff Area=4,063 sf 100.00% Impervious Runoff Depth=0.32" Tc=12.0 min CN=98 Runoff=0.04 cfs 108 cf
<b>Subcatchment 9B: Area 9B</b>	Runoff Area=5,512 sf 100.00% Impervious Runoff Depth=0.32" Tc=12.0 min CN=98 Runoff=0.06 cfs 146 cf
<b>Subcatchment 15: Area 15</b>	Runoff Area=3,027 sf 97.49% Impervious Runoff Depth=0.32" Tc=12.0 min CN=98 Runoff=0.03 cfs 80 cf
<b>Subcatchment 15A: Area 15A</b>	Runoff Area=3,750 sf 100.00% Impervious Runoff Depth=0.32" Tc=12.0 min CN=98 Runoff=0.04 cfs 99 cf

**Genesee St Final**

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*Type II 24-hr 75% Rainfall=0.50"*

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**Subcatchment 15B: Area 15B**Runoff Area=16,790 sf 100.00% Impervious Runoff Depth=0.32"  
Tc=12.0 min CN=98 Runoff=0.17 cfs 445 cf**Subcatchment 16: Area 16**Runoff Area=2,715 sf 98.42% Impervious Runoff Depth=0.32"  
Tc=12.0 min CN=98 Runoff=0.03 cfs 72 cf**Pond 84": 84" TRUNK SEWER**Peak Elev=590.27' Inflow=0.39 cfs 2,849 cf  
84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/ Outflow=0.39 cfs 2,866 cf**Pond DI 868: DI #868**Peak Elev=612.73' Inflow=0.10 cfs 254 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/ Outflow=0.10 cfs 254 cf**Pond DS 10: Planter PB-8A**Peak Elev=610.82' Storage=61 cf Inflow=0.02 cfs 61 cf  
Outflow=0.00 cfs 0 cf**Pond DS 11: Planter PB-9A**Peak Elev=610.42' Storage=46 cf Inflow=0.02 cfs 46 cf  
Outflow=0.00 cfs 0 cf**Pond DS 14: DS 14**Peak Elev=613.05' Inflow=0.19 cfs 488 cf  
Primary=0.13 cfs 442 cf Secondary=0.05 cfs 46 cf Outflow=0.19 cfs 488 cf**Pond DS 15: Planter PB-4A**Peak Elev=611.05' Storage=442 cf Inflow=0.13 cfs 442 cf  
Outflow=0.00 cfs 0 cf**Pond DS 2: Planter PB-1A**Peak Elev=611.53' Storage=113 cf Inflow=0.04 cfs 113 cf  
Outflow=0.00 cfs 0 cf**Pond DS 28: DS 28**Peak Elev=608.85' Inflow=0.04 cfs 141 cf  
12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/ Outflow=0.04 cfs 141 cf**Pond DS 29: Planter PB-1B**Peak Elev=610.65' Storage=63 cf Inflow=0.03 cfs 94 cf  
Outflow=0.00 cfs 42 cf**Pond DS 3: DS 3**Peak Elev=613.01' Inflow=0.31 cfs 885 cf  
Primary=0.31 cfs 885 cf Secondary=0.00 cfs 0 cf Outflow=0.31 cfs 885 cf**Pond DS 30: Planter PB-2B**Peak Elev=612.06' Storage=61 cf Inflow=0.03 cfs 72 cf  
Outflow=0.00 cfs 14 cf**Pond DS 4: Planter PB-2A**Peak Elev=612.59' Storage=872 cf Inflow=0.31 cfs 885 cf  
Outflow=0.01 cfs 14 cf**Pond DS 5: Planter PB-3A**Peak Elev=610.77' Storage=45 cf Inflow=0.02 cfs 45 cf  
Outflow=0.00 cfs 0 cf**Pond DS 6: DS 6**Peak Elev=612.76' Inflow=0.10 cfs 254 cf  
10.0" Round Culvert n=0.010 L=303.0' S=0.0028 '/ Outflow=0.10 cfs 254 cf**Pond DS 7: Planter PB-5A**Peak Elev=611.84' Storage=98 cf Inflow=0.04 cfs 98 cf  
Outflow=0.00 cfs 0 cf**Pond DS 9: Planter PB-7A**Peak Elev=610.94' Storage=70 cf Inflow=0.03 cfs 70 cf  
Outflow=0.00 cfs 0 cf

**Genesee St Final***Type II 24-hr 75% Rainfall=0.50"*

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**Pond DS-1: DS 1**

Peak Elev=612.71' Inflow=0.08 cfs 2,008 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.08 cfs 2,009 cf

**Pond DS8: Planter PB-6A**

Peak Elev=611.03' Storage=38 cf Inflow=0.01 cfs 38 cf  
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 112,891 sf   Runoff Volume = 2,851 cf   Average Runoff Depth = 0.30"**  
**1.61% Pervious = 1,812 sf   98.39% Impervious = 111,079 sf**

**Summary for Subcatchment 1: Area 1**

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 113 cf, Depth= 0.26"

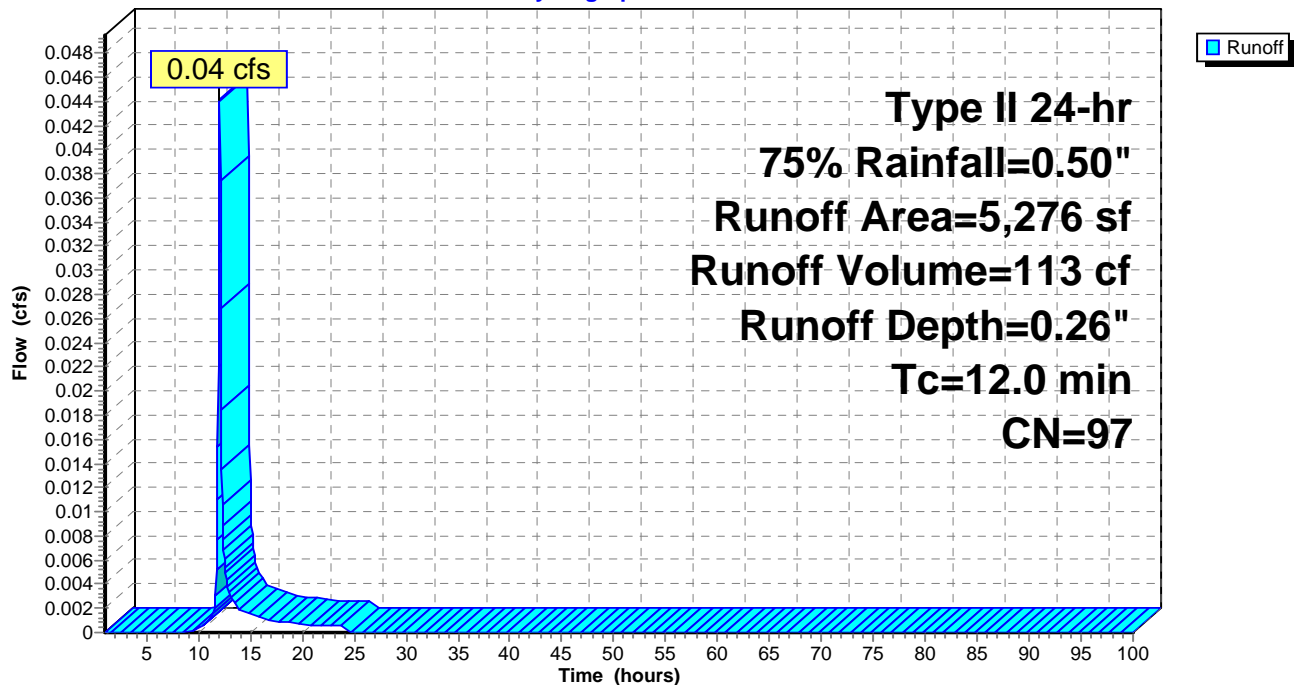
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
223	80	>75% Grass cover, Good, HSG D
5,053	98	Paved parking, HSG D
5,276	97	Weighted Average
223		4.23% Pervious Area
5,053		95.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 1: Area 1**

Hydrograph



**Summary for Subcatchment 1M: Area 1M M and T Lot one**

Runoff = 0.28 cfs @ 12.07 hrs, Volume= 800 cf, Depth= 0.32"

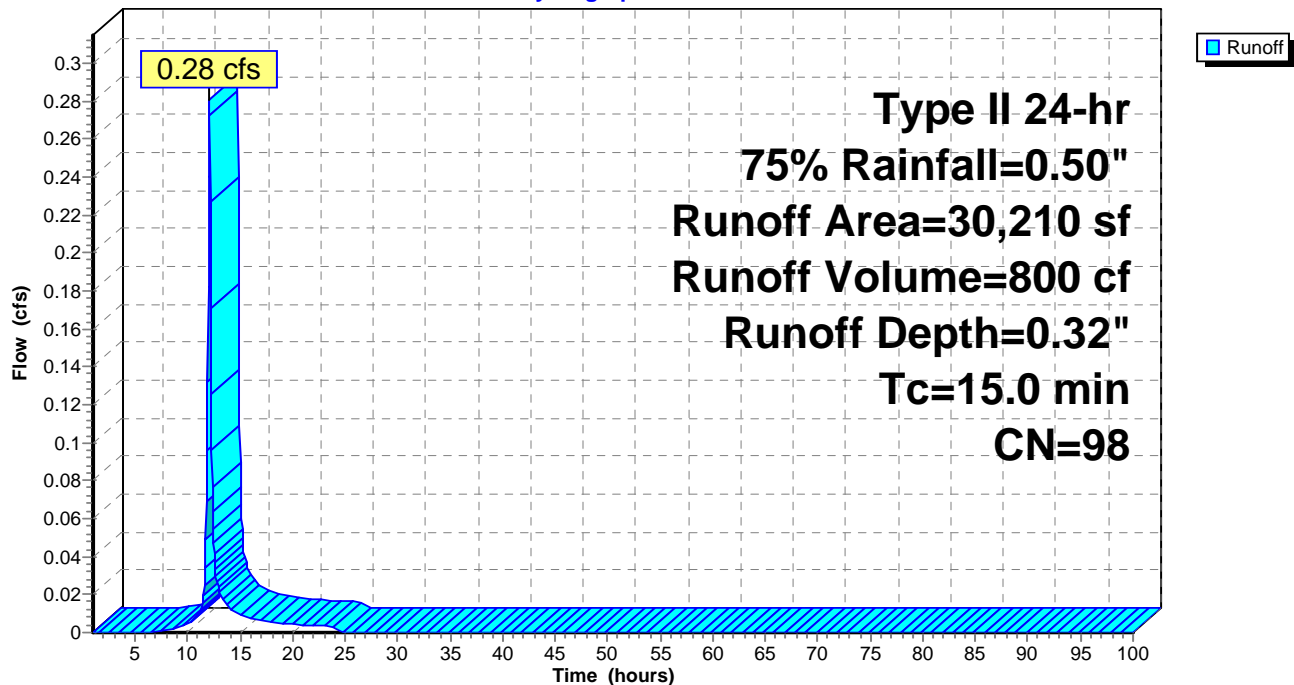
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
210	80	>75% Grass cover, Good, HSG D
30,000	98	Paved parking, HSG D
30,210	98	Weighted Average
210		0.70% Pervious Area
30,000		99.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					Direct Entry,

**Subcatchment 1M: Area 1M M and T Lot one**

Hydrograph



**Summary for Subcatchment 2: Area 2**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 84 cf, Depth= 0.26"

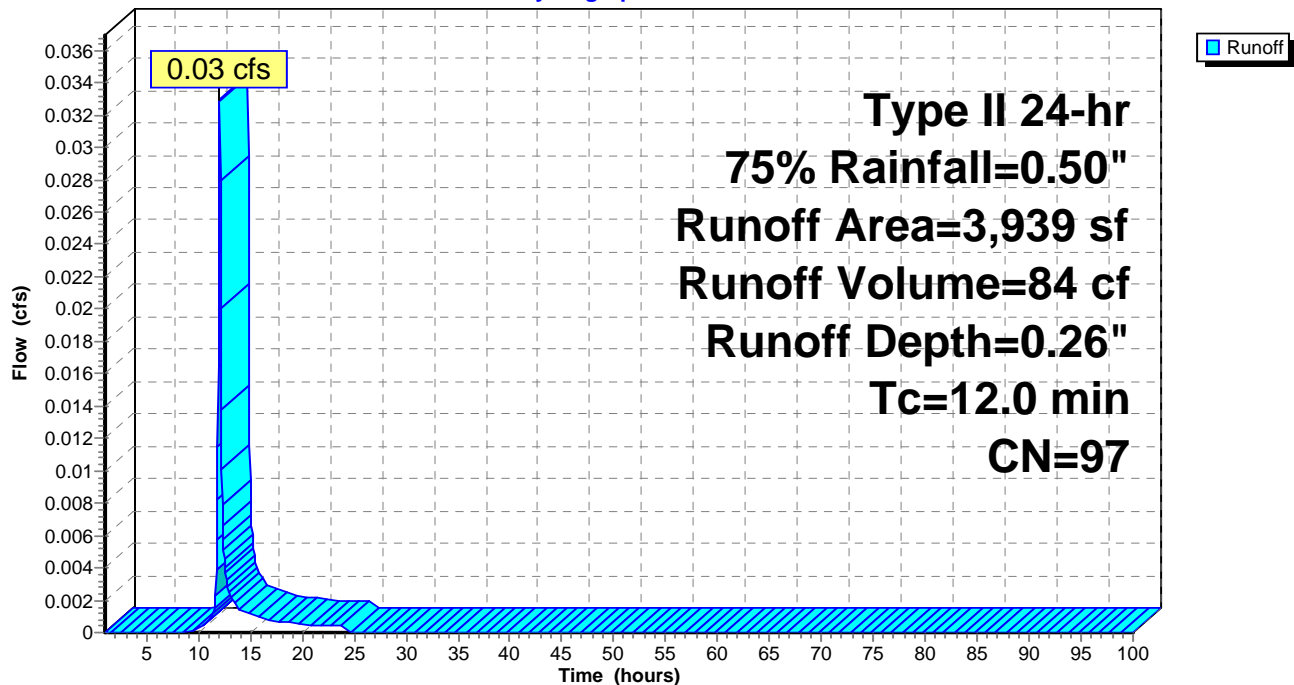
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
312	80	>75% Grass cover, Good, HSG D
3,627	98	Paved parking, HSG D
3,939	97	Weighted Average
312		7.92% Pervious Area
3,627		92.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 2: Area 2**

Hydrograph



**Summary for Subcatchment 2M: Area 2M M and T Two**

Runoff = 0.14 cfs @ 12.04 hrs, Volume= 356 cf, Depth= 0.32"

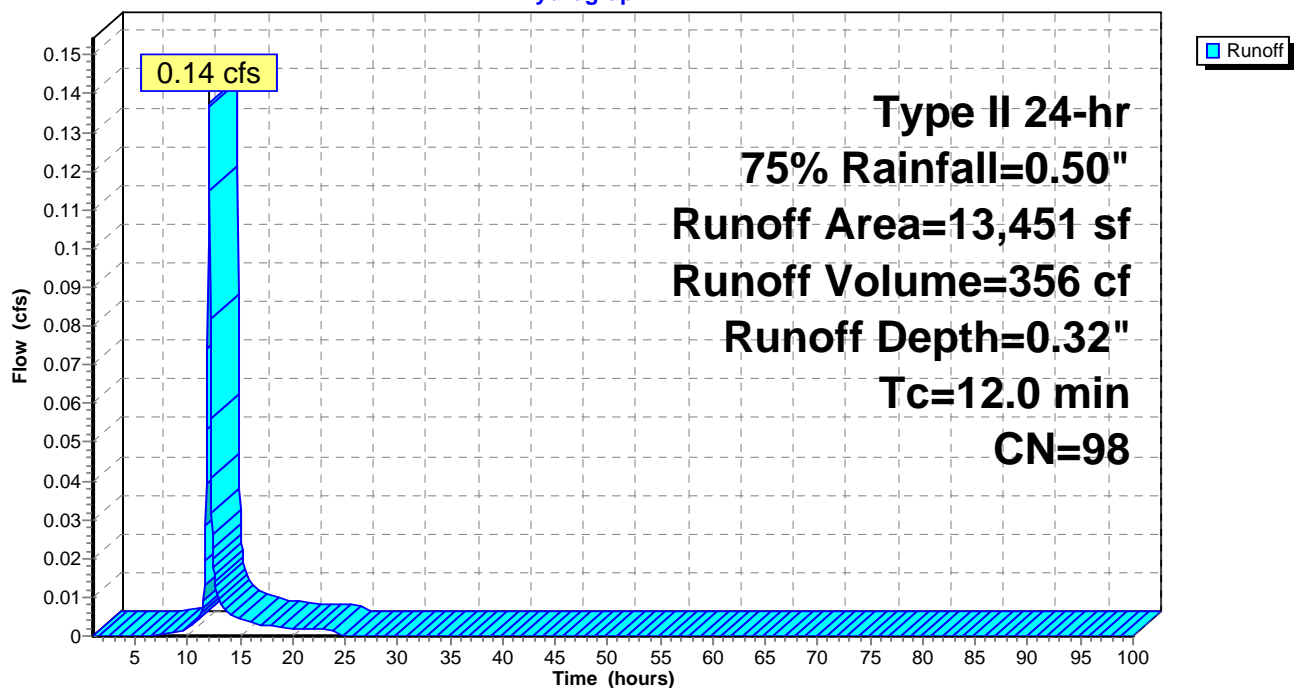
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
13,451	98	Paved parking, HSG D
13,451		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 2M: Area 2M M and T Two**

Hydrograph





**Summary for Subcatchment 3: Area 3**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 45 cf, Depth= 0.26"

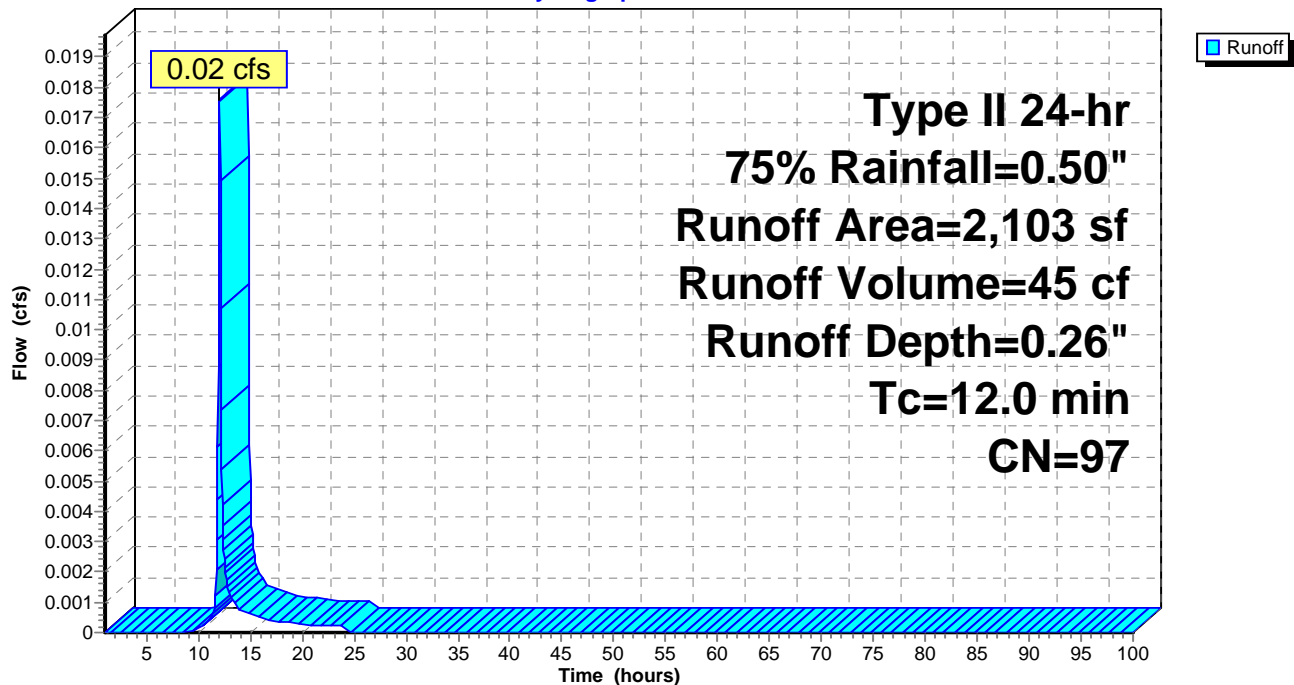
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
159	80	>75% Grass cover, Good, HSG D
1,944	98	Paved parking, HSG D
2,103	97	Weighted Average
159		7.56% Pervious Area
1,944		92.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 3: Area 3**

Hydrograph



**Summary for Subcatchment 4: Area 4**

Runoff = 0.05 cfs @ 12.04 hrs, Volume= 132 cf, Depth= 0.26"

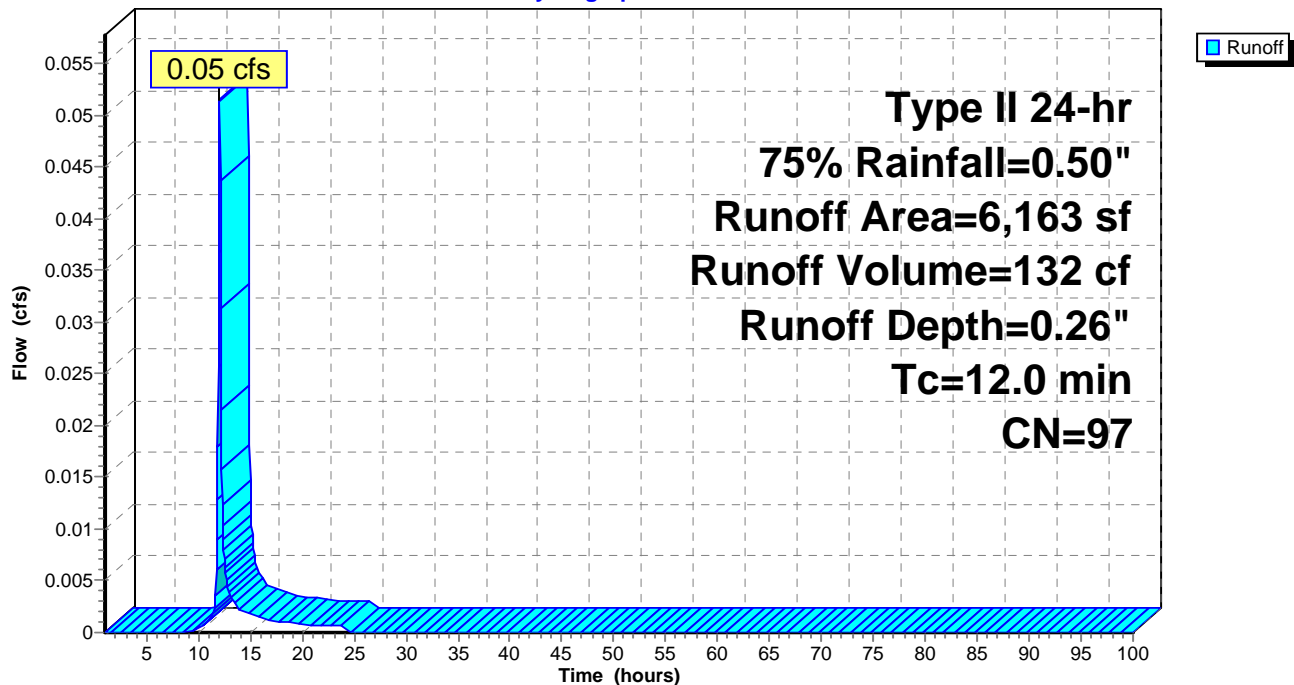
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
311	80	>75% Grass cover, Good, HSG D
5,852	98	Paved parking, HSG D
6,163	97	Weighted Average
311		5.05% Pervious Area
5,852		94.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 4: Area 4**

Hydrograph



**Summary for Subcatchment 4B: Area 4B**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 57 cf, Depth= 0.32"

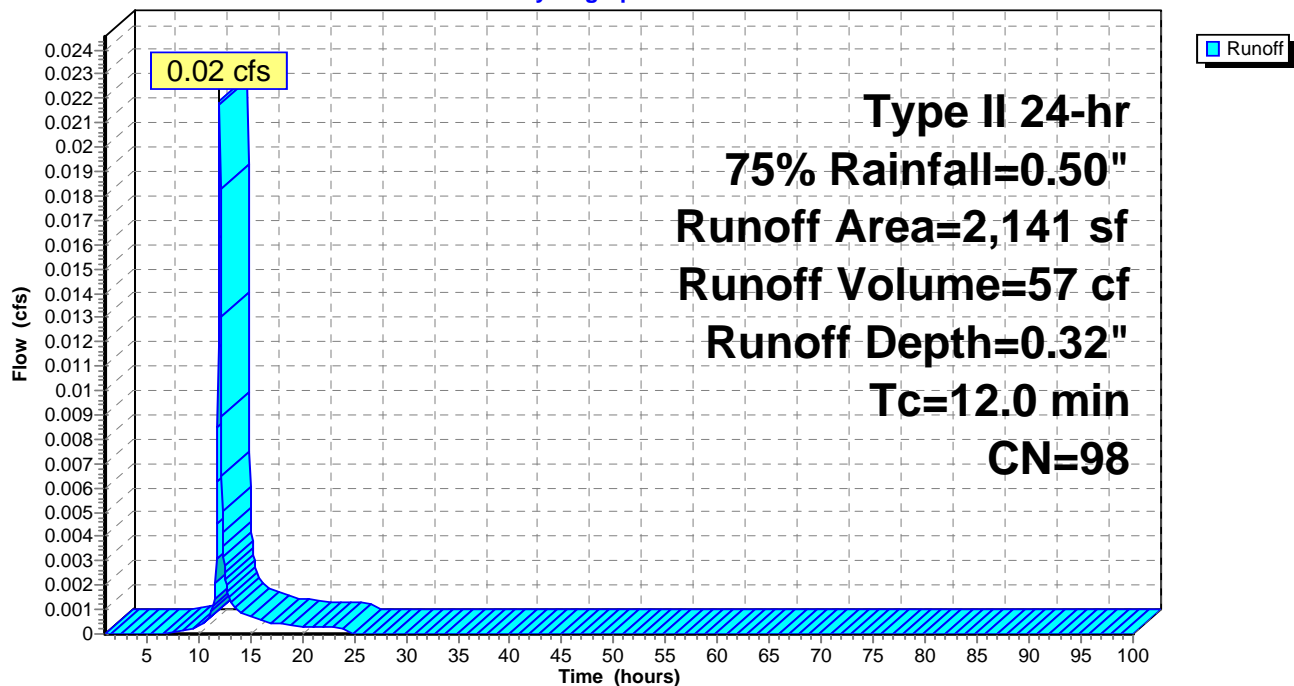
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
2,141	98	Paved parking, HSG D
2,141		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 4B: Area 4B**

Hydrograph



**Summary for Subcatchment 5: Area 5**

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 98 cf, Depth= 0.32"

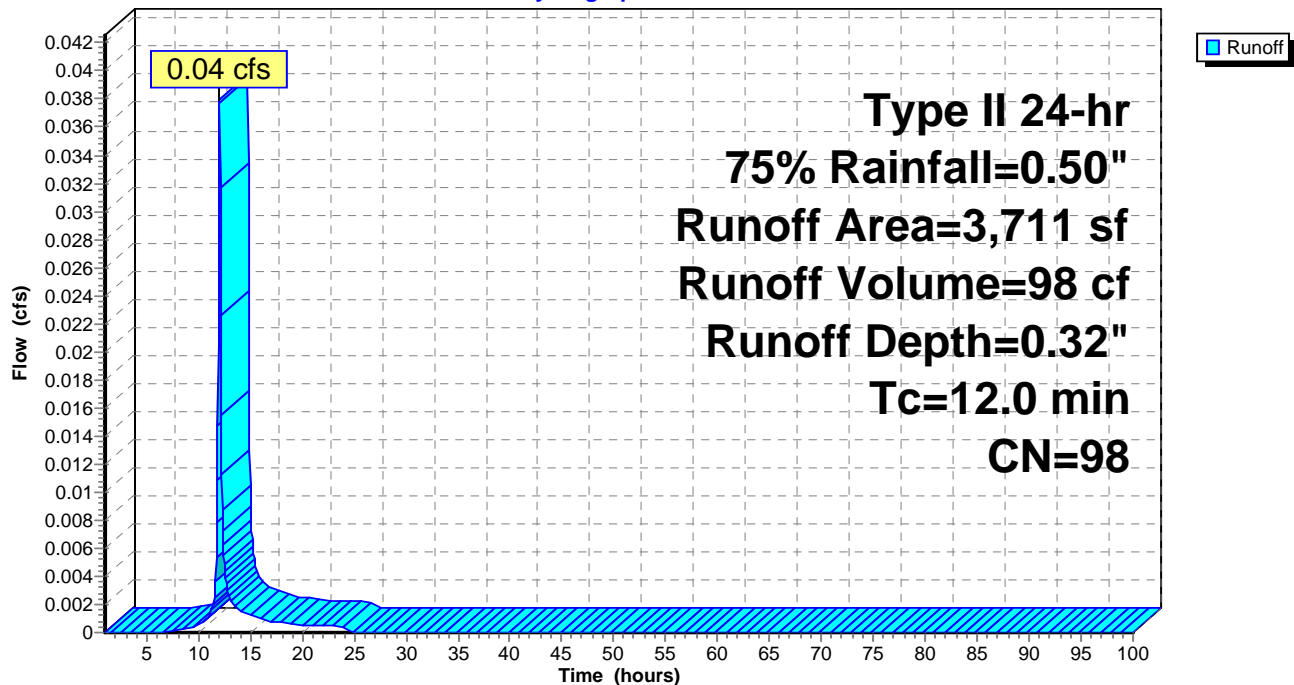
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
69	80	>75% Grass cover, Good, HSG D
3,642	98	Paved parking, HSG D
3,711	98	Weighted Average
69		1.86% Pervious Area
3,642		98.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 5: Area 5**

Hydrograph



**Summary for Subcatchment 6: Area 6**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 38 cf, Depth= 0.26"

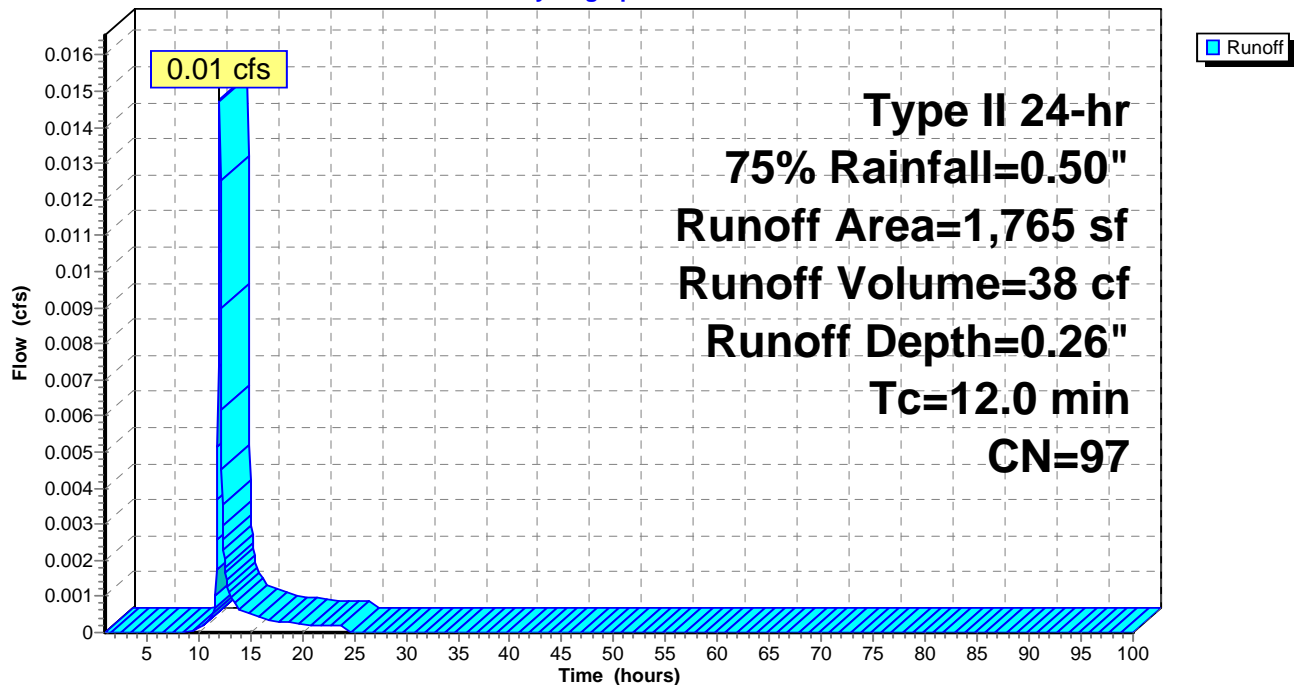
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
69	80	>75% Grass cover, Good, HSG D
1,696	98	Paved parking, HSG D
1,765	97	Weighted Average
69		3.91% Pervious Area
1,696		96.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 6: Area 6**

Hydrograph



**Summary for Subcatchment 7: Area 7**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 70 cf, Depth= 0.26"

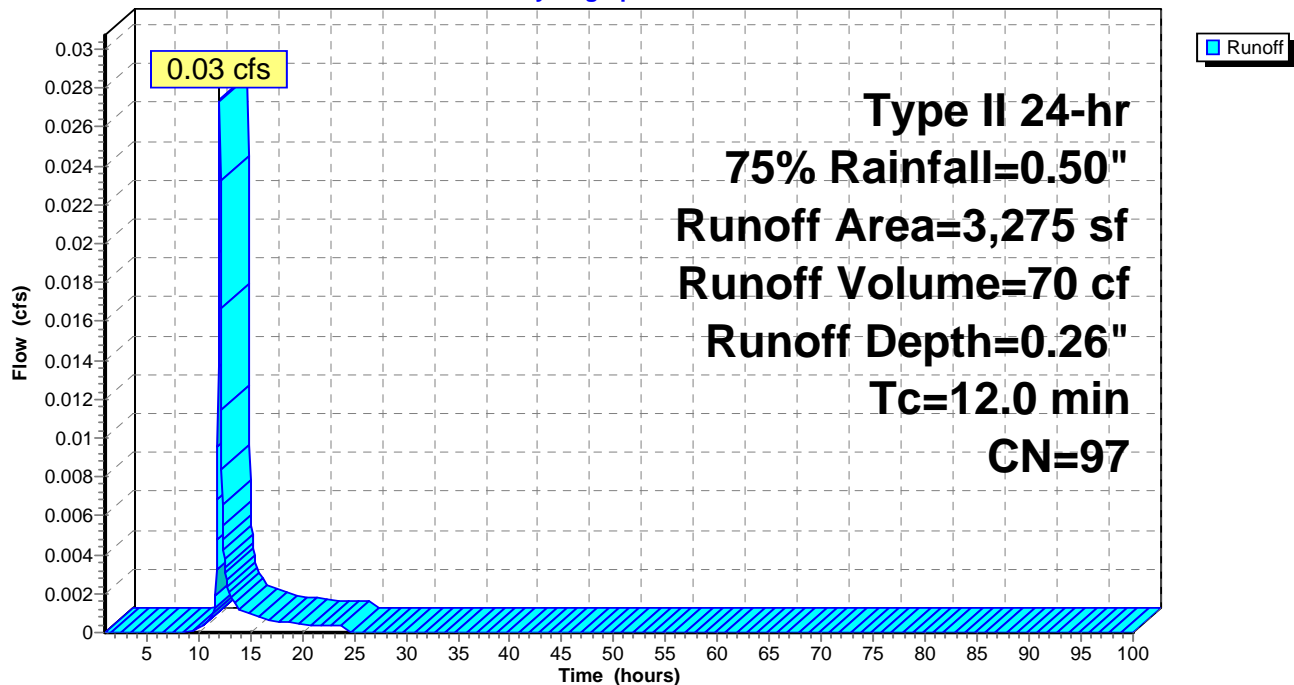
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
114	80	>75% Grass cover, Good, HSG D
3,161	98	Paved parking, HSG D
3,275	97	Weighted Average
114		3.48% Pervious Area
3,161		96.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 7: Area 7**

Hydrograph



**Summary for Subcatchment 8: Area 8**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 61 cf, Depth= 0.26"

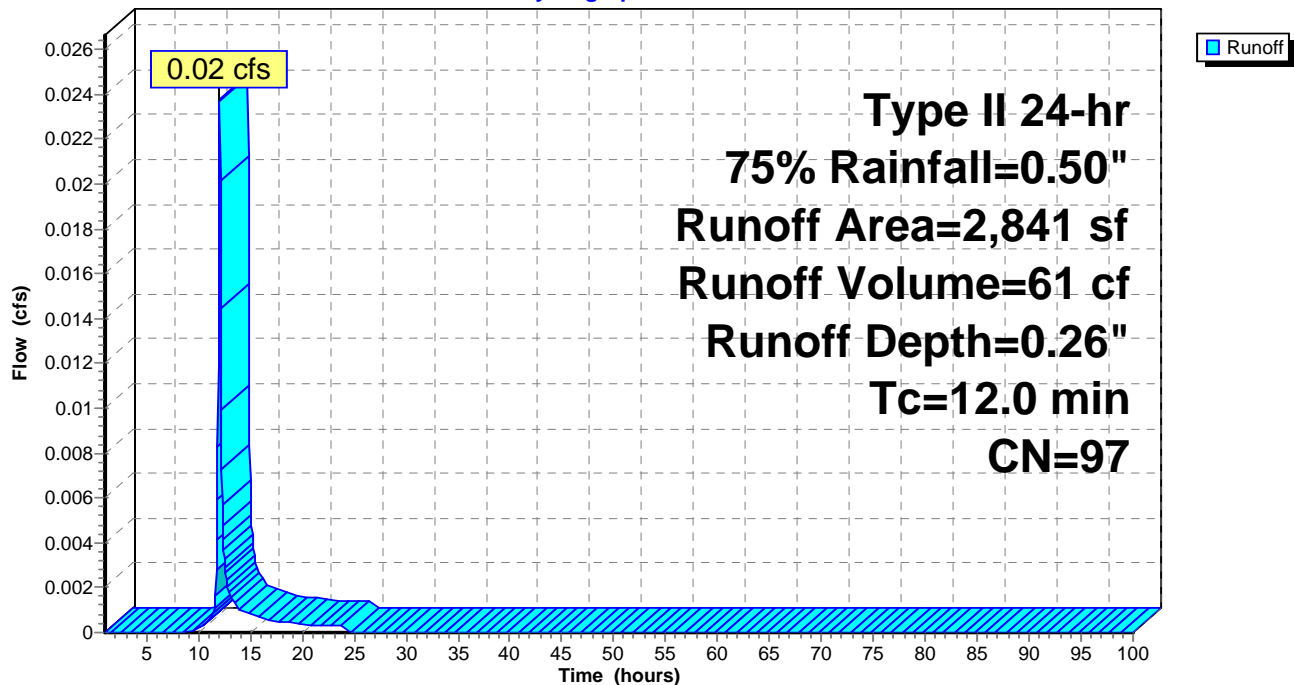
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
109	80	>75% Grass cover, Good, HSG D
2,732	98	Paved parking, HSG D
2,841	97	Weighted Average
109		3.84% Pervious Area
2,732		96.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 8: Area 8**

Hydrograph



**Summary for Subcatchment 9: Area 9**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 46 cf, Depth= 0.26"

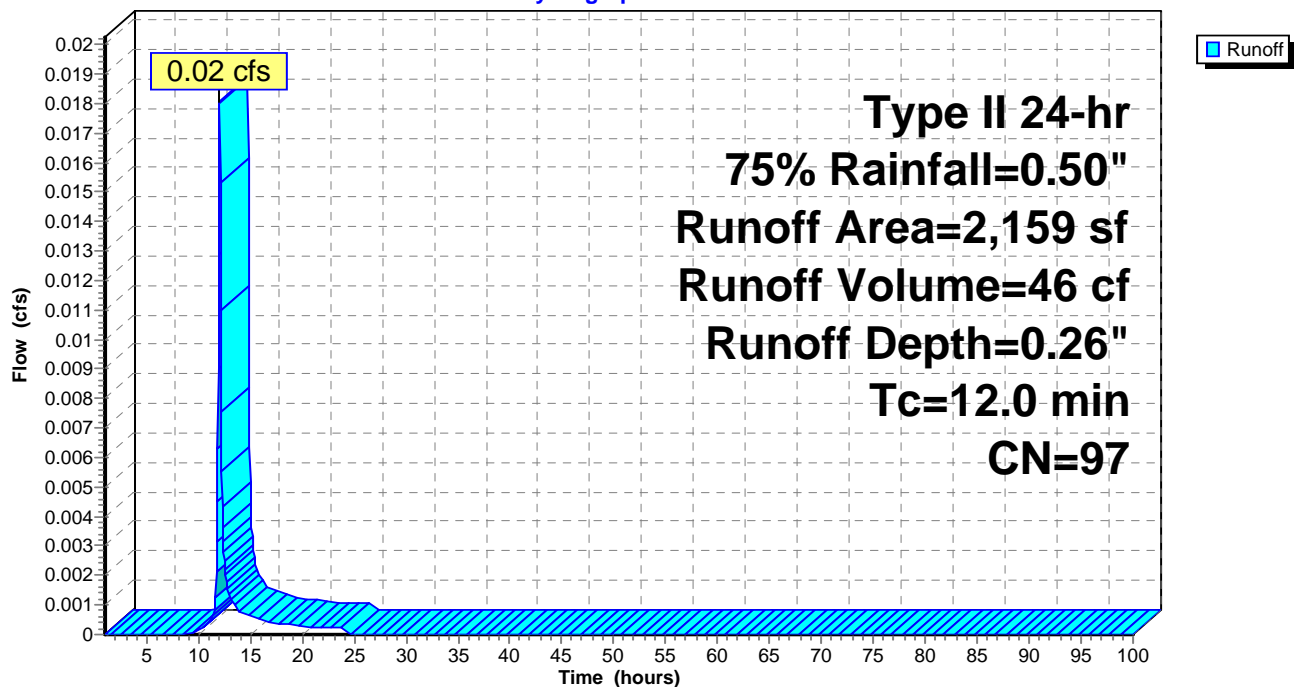
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
117	80	>75% Grass cover, Good, HSG D
2,042	98	Paved parking, HSG D
2,159	97	Weighted Average
117		5.42% Pervious Area
2,042		94.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9: Area 9**

Hydrograph





**Summary for Subcatchment 9A: Area 9A**

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 108 cf, Depth= 0.32"

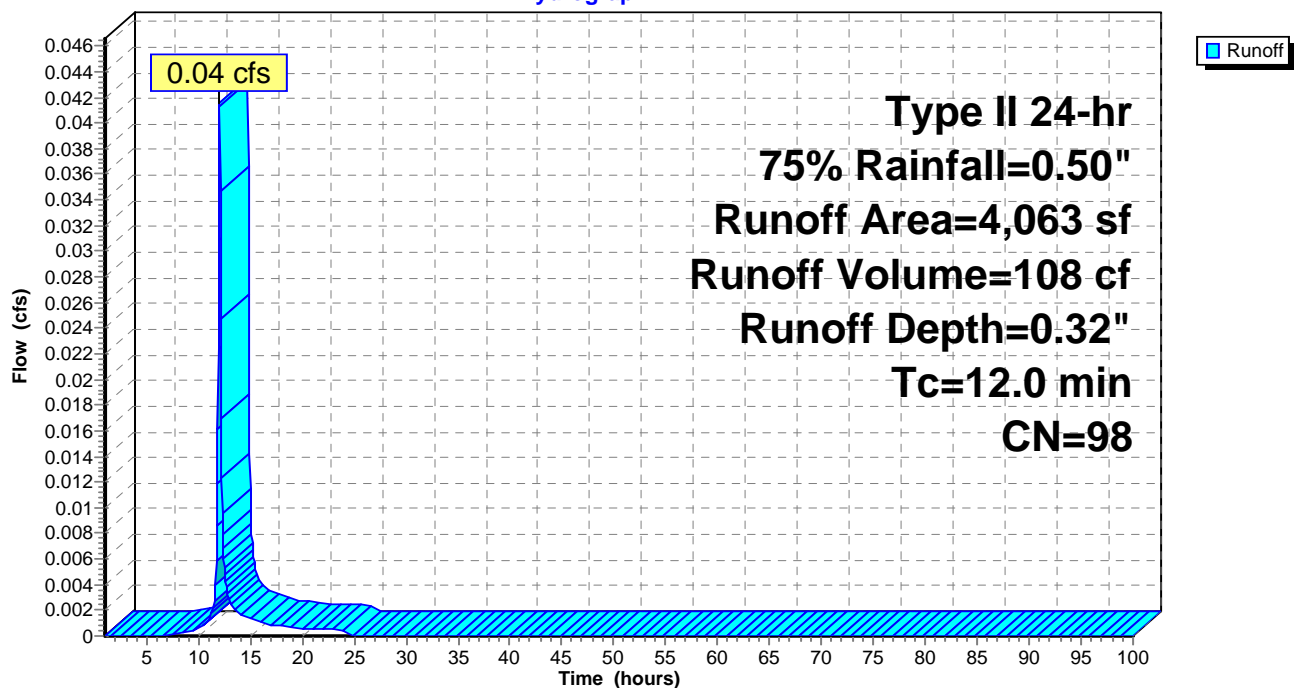
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
4,063	98	Paved parking, HSG D
4,063		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9A: Area 9A**

Hydrograph



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Type II 24-hr 75% Rainfall=0.50"

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**Summary for Subcatchment 9B: Area 9B**

Runoff = 0.06 cfs @ 12.04 hrs, Volume= 146 cf, Depth= 0.32"

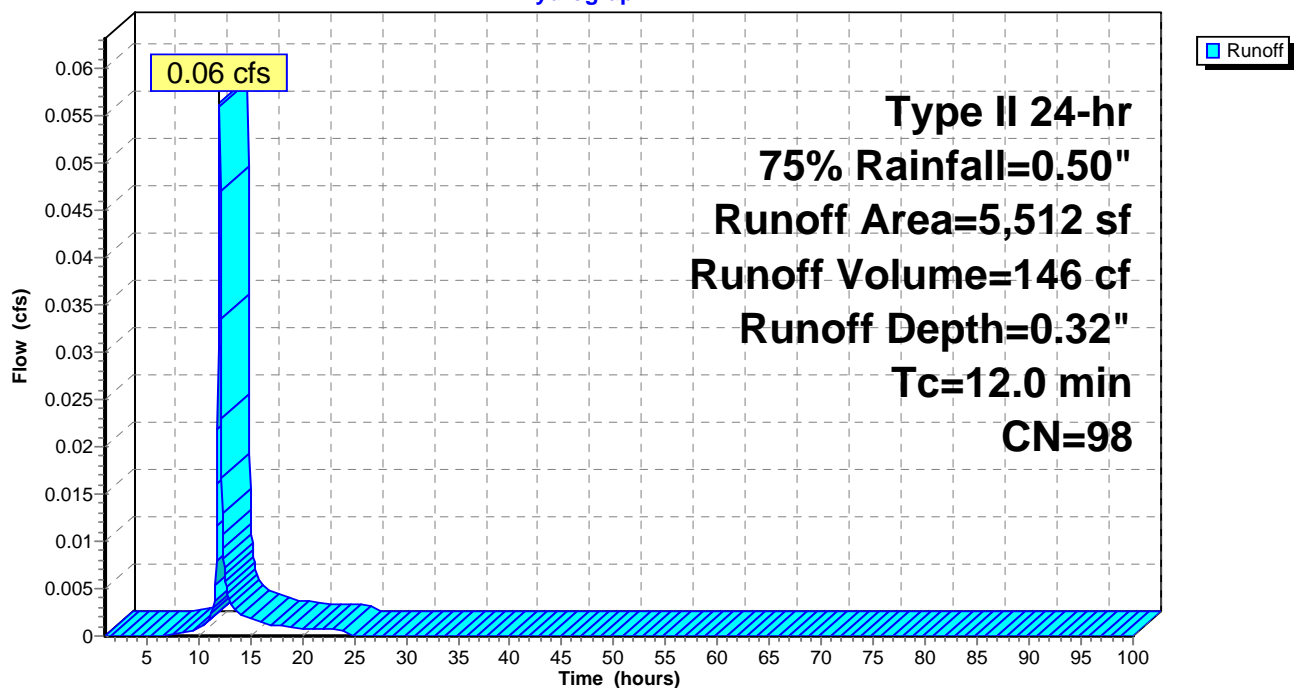
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
5,512	98	Paved parking, HSG D
5,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9B: Area 9B**

Hydrograph



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Type II 24-hr 75% Rainfall=0.50"

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**Summary for Subcatchment 15: Area 15**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 80 cf, Depth= 0.32"

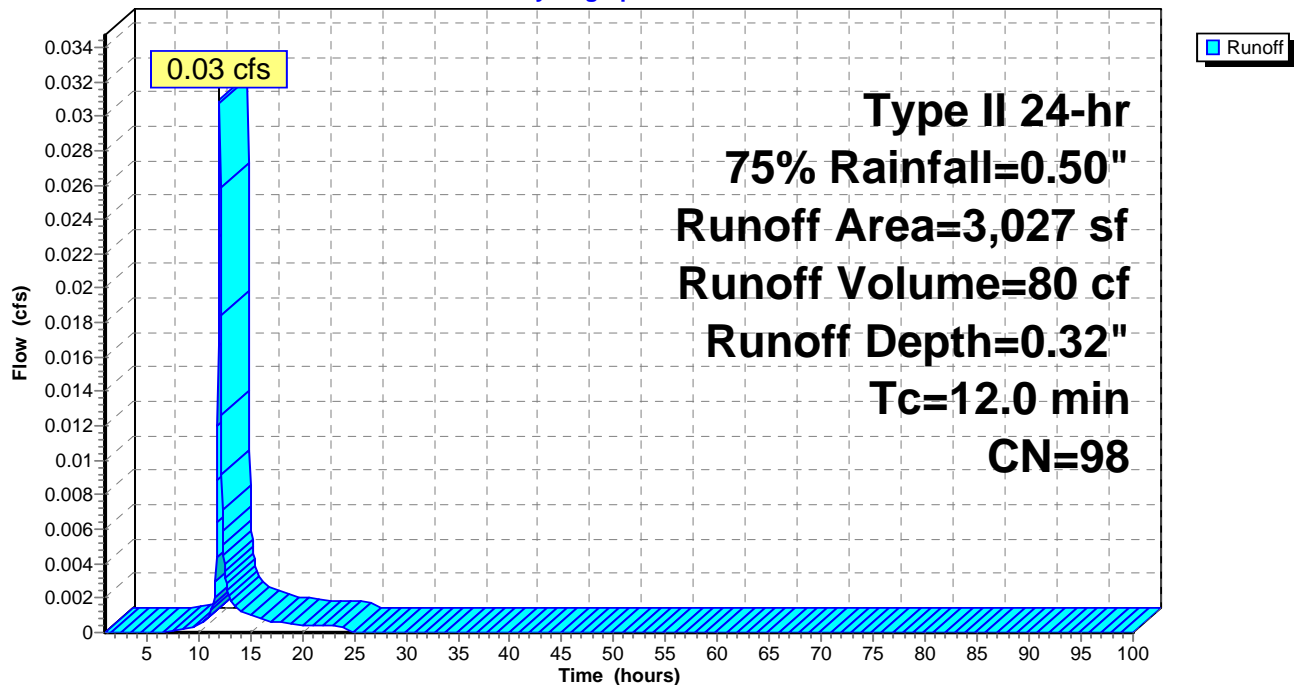
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
76	80	>75% Grass cover, Good, HSG D
2,951	98	Paved parking, HSG D
3,027	98	Weighted Average
76		2.51% Pervious Area
2,951		97.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 15: Area 15**

Hydrograph



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Type II 24-hr 75% Rainfall=0.50"

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### Summary for Subcatchment 15A: Area 15A

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 99 cf, Depth= 0.32"

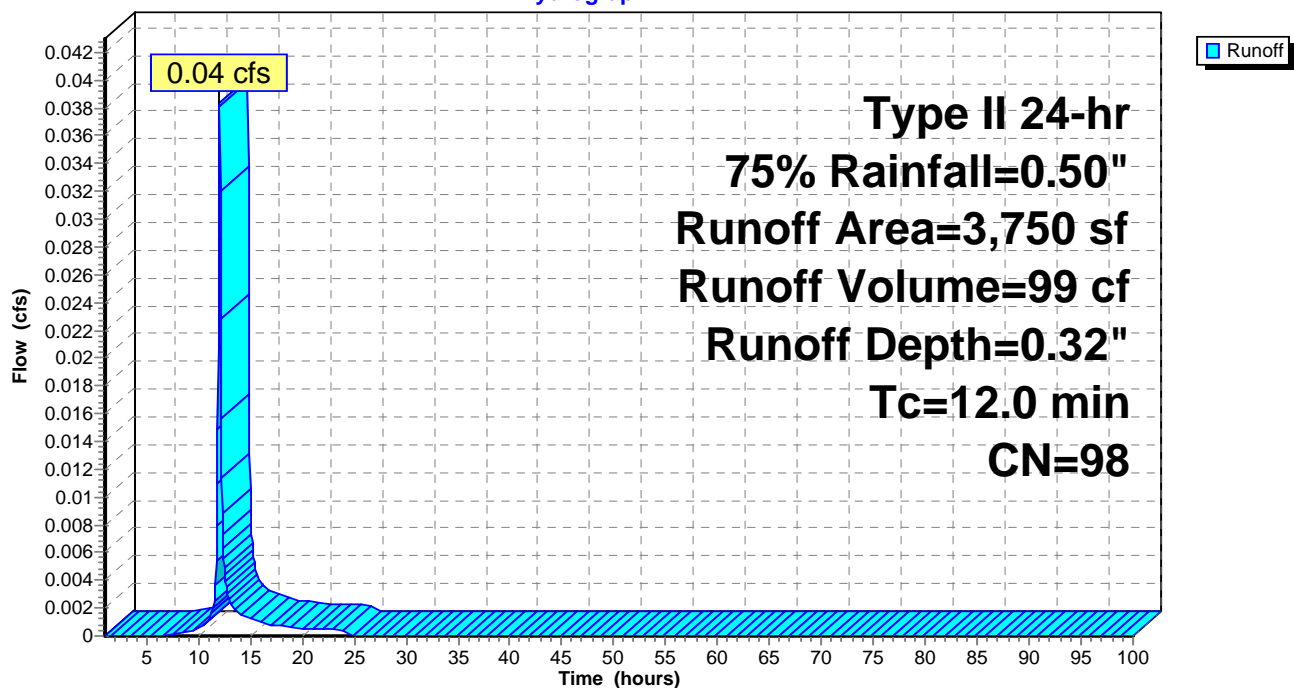
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
3,750	98	Paved parking, HSG D
3,750		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

### Subcatchment 15A: Area 15A

Hydrograph



**Summary for Subcatchment 15B: Area 15B**

Runoff = 0.17 cfs @ 12.04 hrs, Volume= 445 cf, Depth= 0.32"

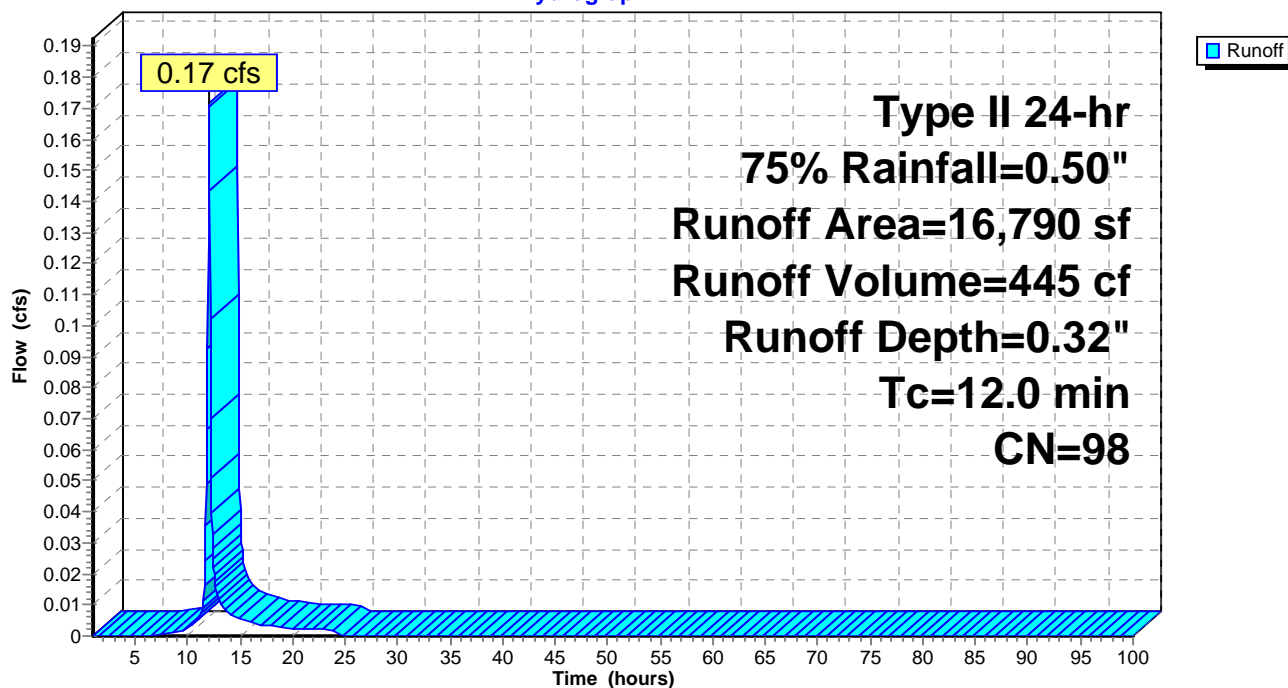
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
16,790	98	Paved parking, HSG D
16,790		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 15B: Area 15B**

Hydrograph



**Summary for Subcatchment 16: Area 16**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 72 cf, Depth= 0.32"

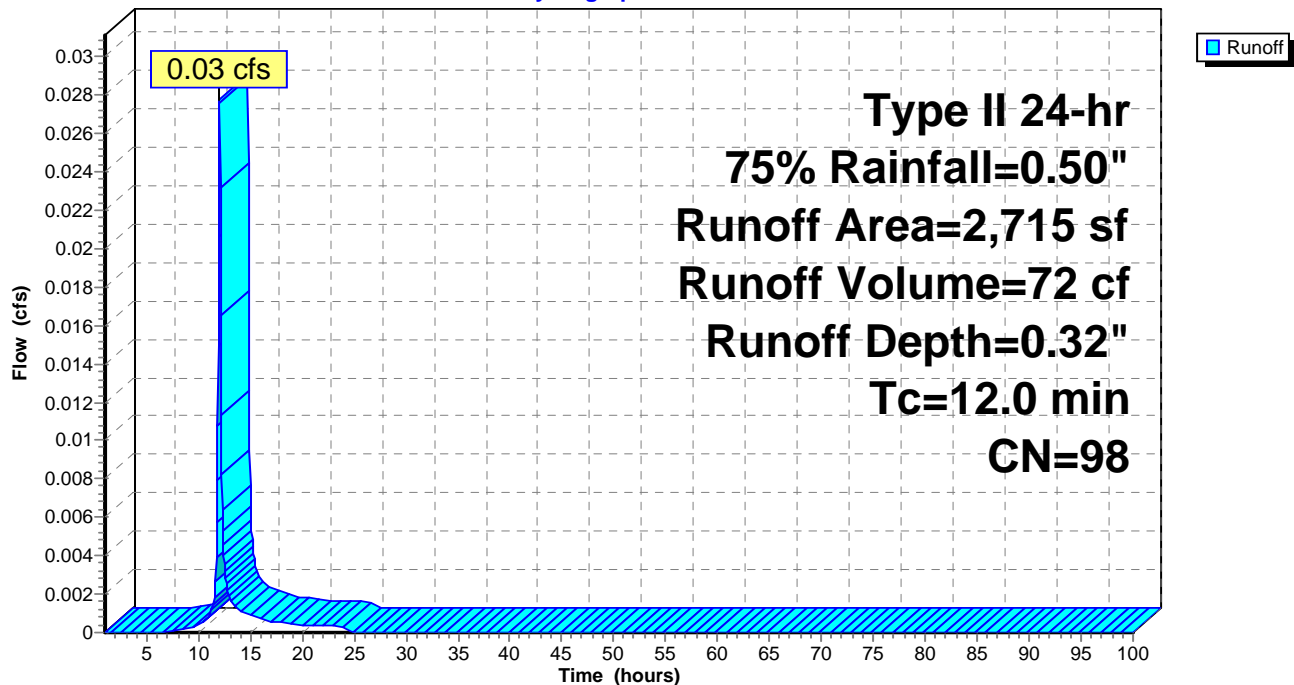
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
43	80	>75% Grass cover, Good, HSG D
2,672	98	Paved parking, HSG D
2,715	98	Weighted Average
43		1.58% Pervious Area
2,672		98.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 16: Area 16**

Hydrograph



**Summary for Pond 84": 84" TRUNK SEWER**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=602)

Inflow Area = 112,891 sf, 98.39% Impervious, Inflow Depth > 0.30" for 75% event  
 Inflow = 0.39 cfs @ 12.04 hrs, Volume= 2,849 cf  
 Outflow = 0.39 cfs @ 12.04 hrs, Volume= 2,866 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.39 cfs @ 12.04 hrs, Volume= 2,866 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 590.27' @ 12.04 hrs

Flood Elev= 647.22'

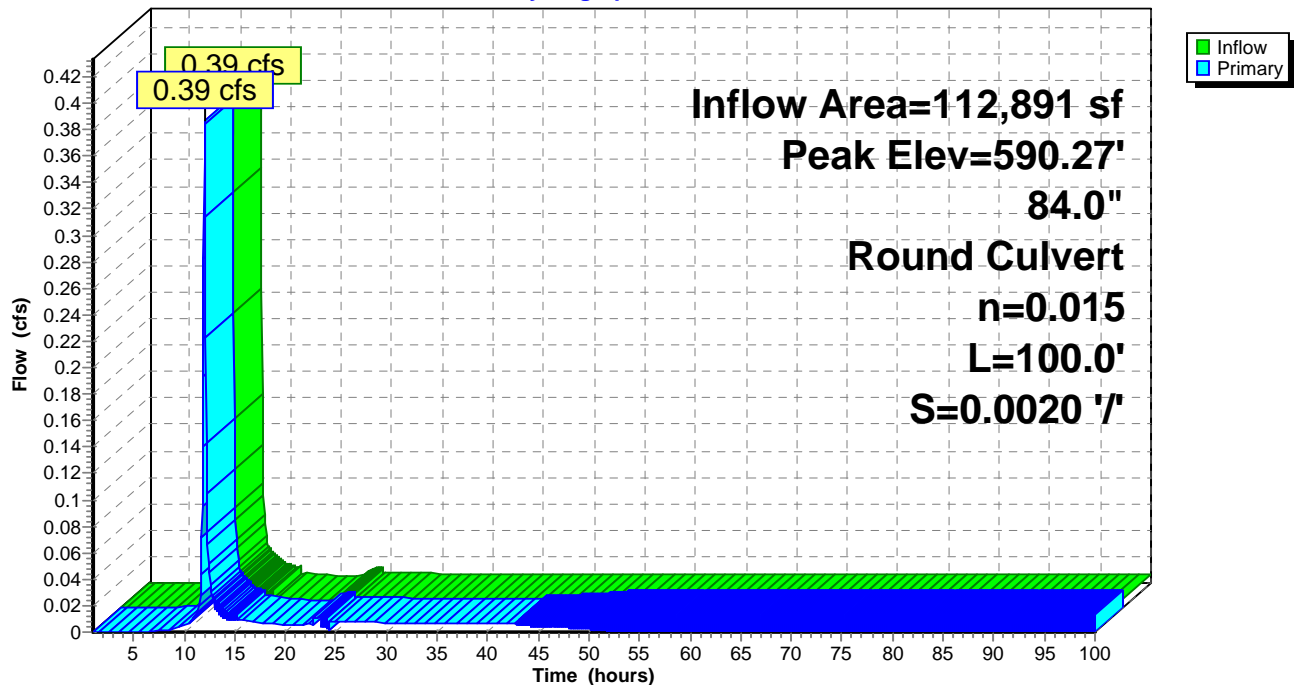
Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	<b>84.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 38.48 sf

**Primary OutFlow** Max=0.38 cfs @ 12.04 hrs HW=590.26' (Free Discharge)

↑1=Culvert (Barrel Controls 0.38 cfs @ 1.22 fps)

**Pond 84": 84" TRUNK SEWER**

Hydrograph



**Summary for Pond DI 868: DI #868**

[80] Warning: Exceeded Pond DS 6 by 0.28' @ 19.70 hrs (0.11 cfs 35,314 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth = 0.13" for 75% event  
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 254 cf  
 Outflow = 0.10 cfs @ 12.04 hrs, Volume= 254 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.10 cfs @ 12.04 hrs, Volume= 254 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

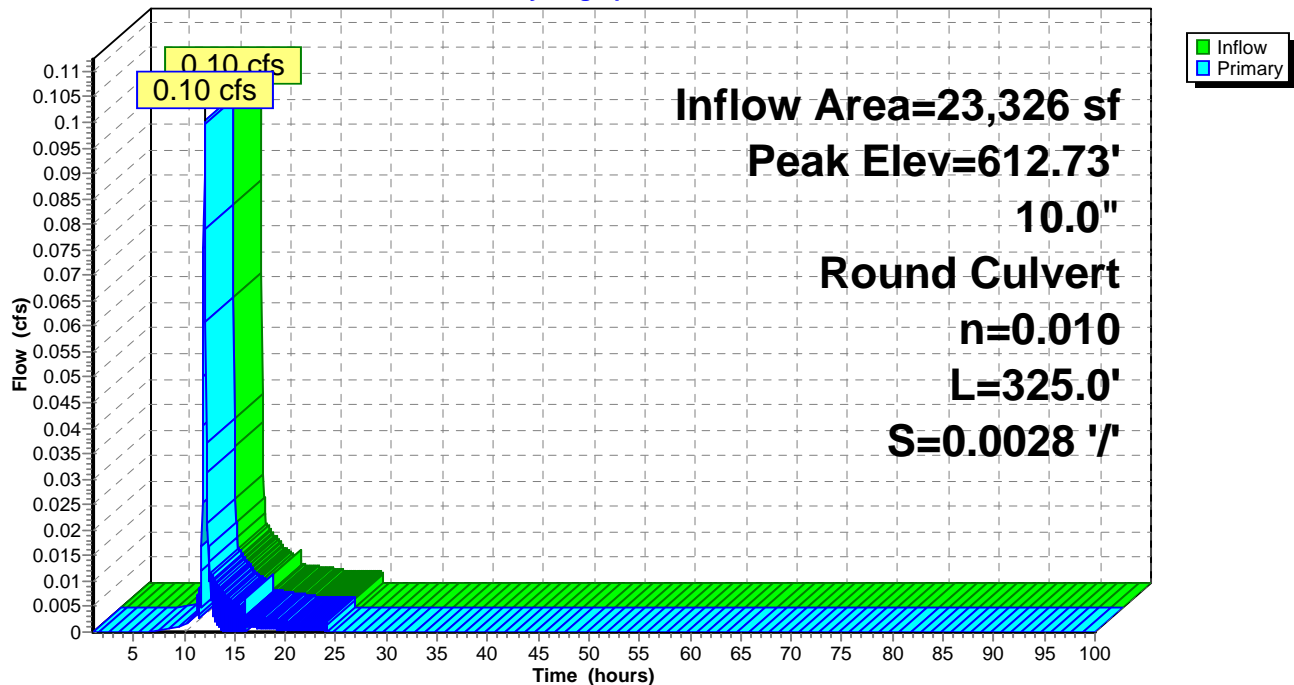
Peak Elev= 612.73' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.10 cfs @ 12.04 hrs HW=612.73' TW=590.26' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 0.10 cfs @ 1.55 fps)

**Pond DI 868: DI #868****Hydrograph**



**Summary for Pond DS 10: Planter PB-8A**

Inflow Area = 2,841 sf, 96.16% Impervious, Inflow Depth = 0.26" for 75% event  
 Inflow = 0.02 cfs @ 12.04 hrs, Volume= 61 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.82' @ 24.70 hrs Surf.Area= 391 sf Storage= 61 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.43'	638 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.43	391	0.0	0	0
613.75	391	40.0	519	519
613.76	141	20.0	1	520
615.09	141	50.0	94	614
615.26	141	100.0	24	638

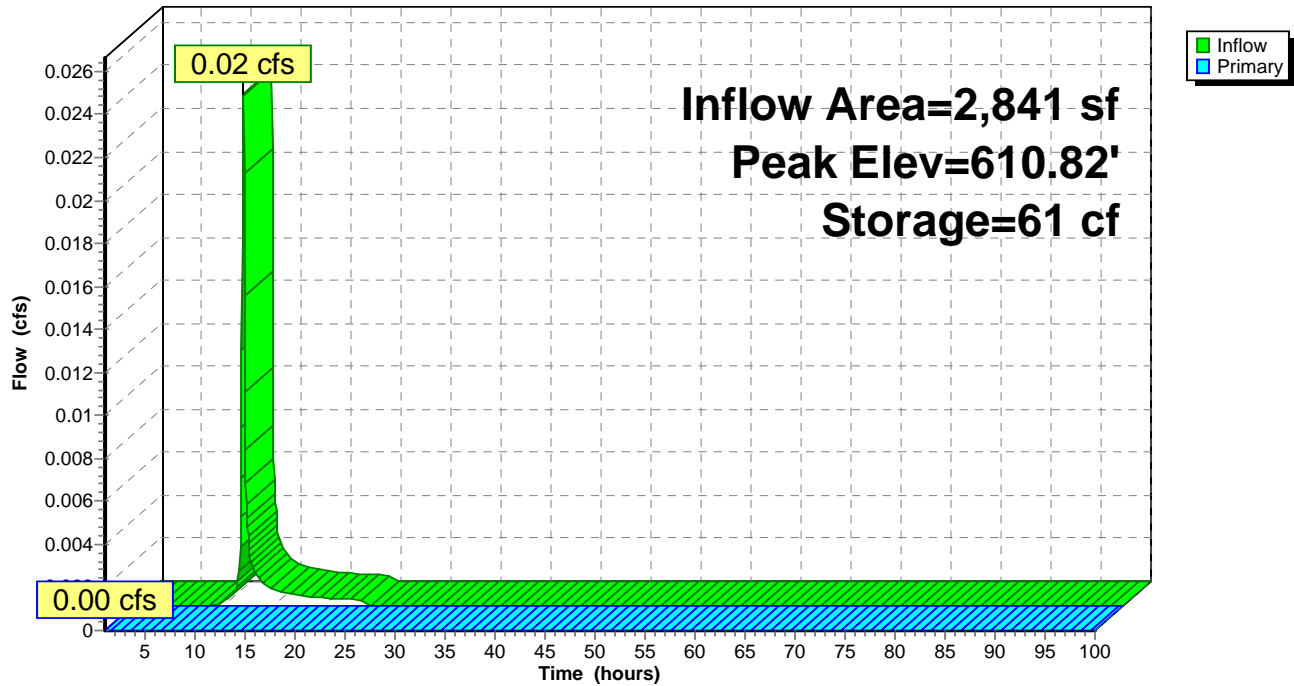
Device	Routing	Invert	Outlet Devices
#1	Primary	611.95'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.95' / 611.88' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.76'	<b>6.0" Round Culvert</b> L= 28.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.76' / 610.76' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.43'	<b>1.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.25'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.43' TW=612.27' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 10: Planter PB-8A

Hydrograph



**Summary for Pond DS 11: Planter PB-9A**

Inflow Area = 2,159 sf, 94.58% Impervious, Inflow Depth = 0.26" for 75% event  
 Inflow = 0.02 cfs @ 12.04 hrs, Volume= 46 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.42' @ 24.70 hrs Surf.Area= 391 sf Storage= 46 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.12'	664 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.12	391	0.0	0	0
613.61	391	40.0	546	546
613.62	141	20.0	1	546
614.95	141	50.0	94	640
615.12	141	100.0	24	664

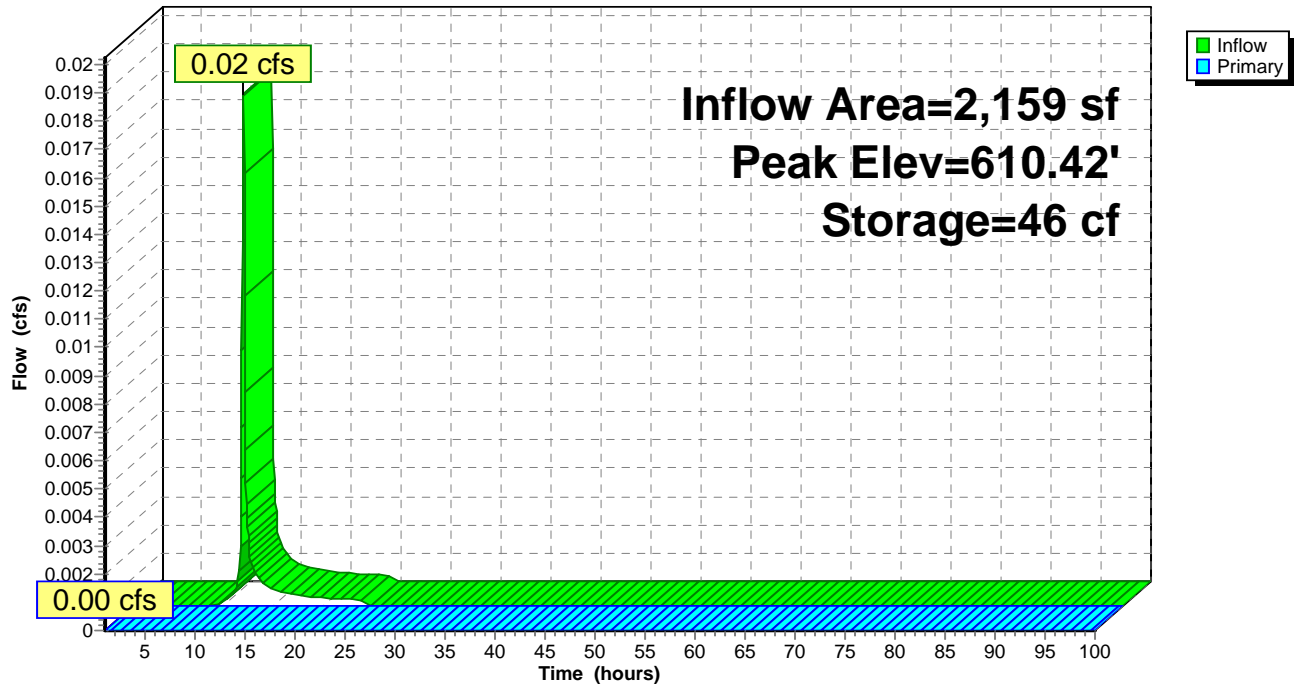
Device	Routing	Invert	Outlet Devices
#1	Primary	611.91'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.91' / 611.84' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.62'	<b>6.0" Round Culvert</b> L= 27.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.62' / 610.62' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.12'	<b>1.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.11'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.12' TW=612.27' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 11: Planter PB-9A

Hydrograph



## Summary for Pond DS 14: DS 14

Inflow Area = 19,614 sf, 98.41% Impervious, Inflow Depth = 0.30" for 75% event  
 Inflow = 0.19 cfs @ 12.04 hrs, Volume= 488 cf  
 Outflow = 0.19 cfs @ 12.04 hrs, Volume= 488 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.13 cfs @ 12.04 hrs, Volume= 442 cf  
 Secondary = 0.05 cfs @ 12.04 hrs, Volume= 46 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.05' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.80'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.80' / 612.75' S= 0.0125 ' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	612.90'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.90' / 612.83' S= 0.0117 ' / Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

**Primary OutFlow** Max=0.13 cfs @ 12.04 hrs HW=613.05' TW=610.33' (Dynamic Tailwater)

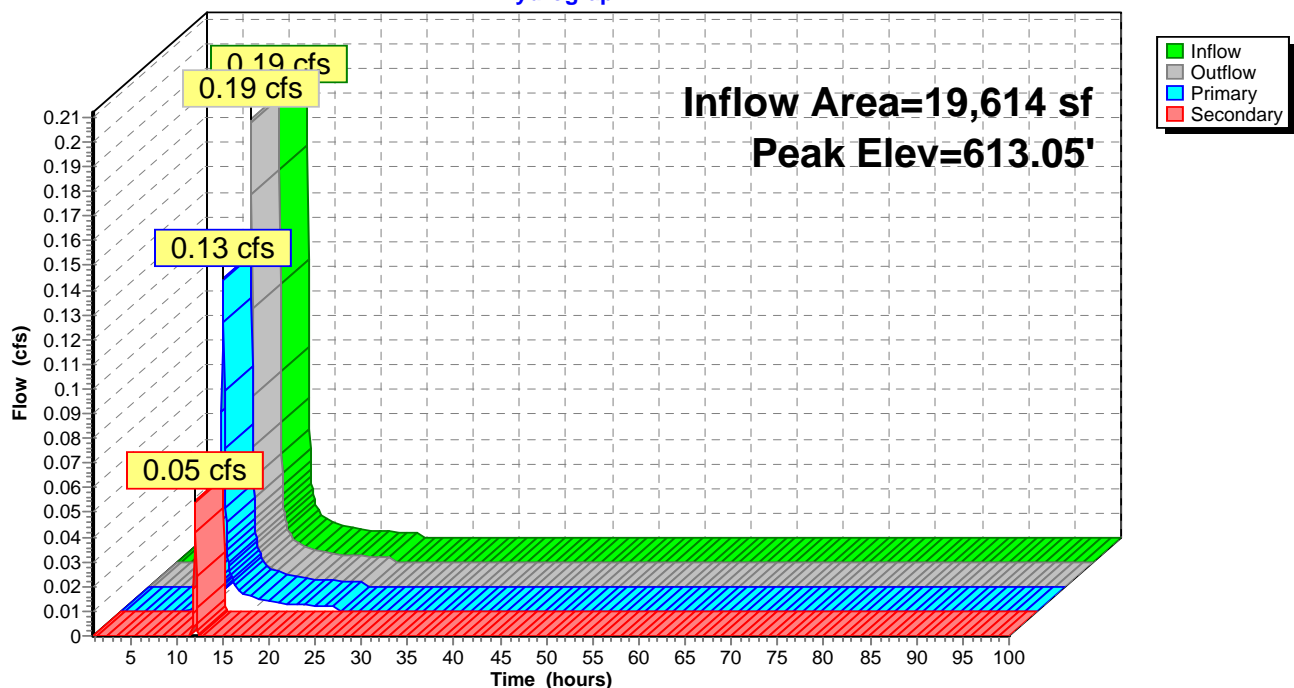
↑**1=Culvert** (Barrel Controls 0.13 cfs @ 2.02 fps)

**Secondary OutFlow** Max=0.05 cfs @ 12.04 hrs HW=613.05' TW=612.71' (Dynamic Tailwater)

↑**2=Culvert** (Barrel Controls 0.05 cfs @ 1.67 fps)

## Pond DS 14: DS 14

## Hydrograph



**Summary for Pond DS 15: Planter PB-4A**

Inflow Area = 19,614 sf, 98.41% Impervious, Inflow Depth = 0.27" for 75% event  
 Inflow = 0.13 cfs @ 12.04 hrs, Volume= 442 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.05' @ 24.75 hrs Surf.Area= 1,055 sf Storage= 442 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.00'	1,803 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.00	1,055	0.0	0	0
613.49	1,055	40.0	1,473	1,473
613.50	394	20.0	1	1,474
614.83	394	50.0	262	1,736
615.00	394	100.0	67	1,803

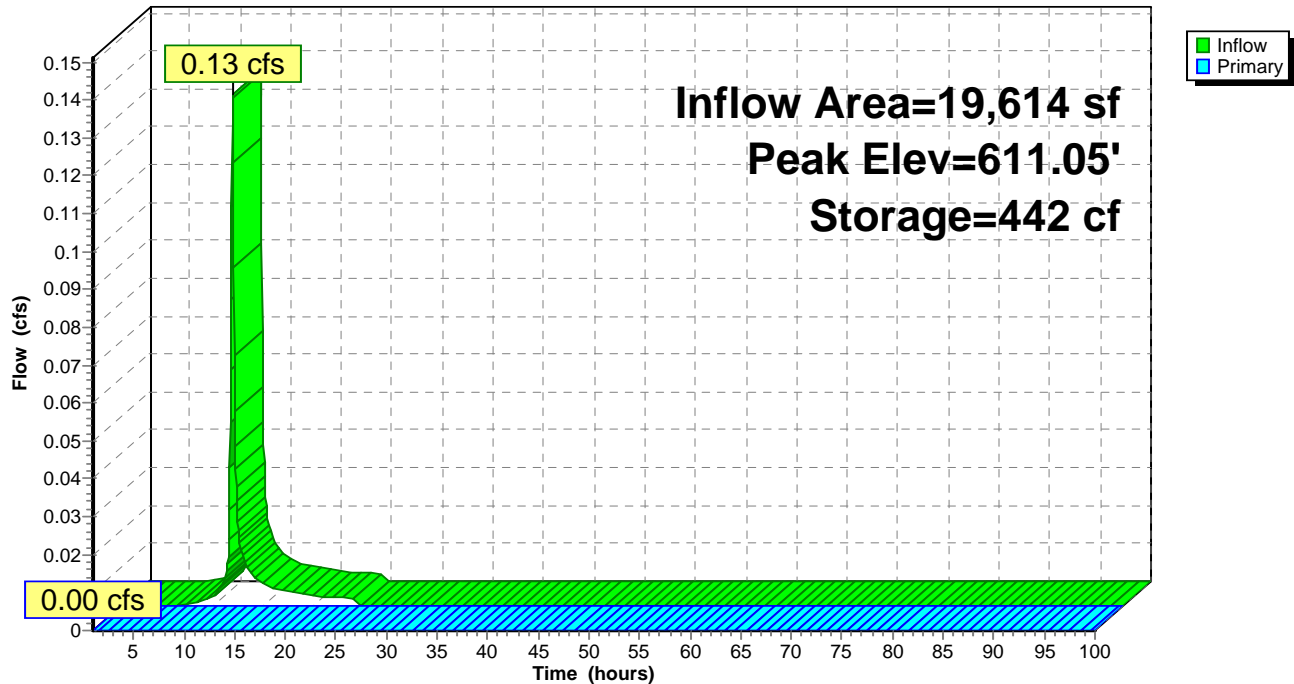
Device	Routing	Invert	Outlet Devices
#1	Primary	611.93'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.93' / 611.86' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.50'	<b>6.0" Round Culvert</b> L= 61.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.50' / 610.50' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.00'	<b>11.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.99'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.00' TW=612.54' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.27 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 15: Planter PB-4A

Hydrograph



**Summary for Pond DS 2: Planter PB-1A**

Inflow Area = 5,276 sf, 95.77% Impervious, Inflow Depth = 0.26" for 75% event  
 Inflow = 0.04 cfs @ 12.04 hrs, Volume= 113 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.53' @ 24.70 hrs Surf.Area= 273 sf Storage= 113 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.50'	610 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.50	273	0.0	0	0
613.99	273	40.0	381	381
614.00	273	20.0	1	382
615.33	273	50.0	182	563
615.50	273	100.0	46	610

Device	Routing	Invert	Outlet Devices
#1	Primary	612.64'	<b>6.0" Round Culvert</b> L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.64' / 612.59' S= 0.0125 ' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.12'	<b>6.0" Round Culvert</b> L= 39.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.12' / 611.12' S= 0.0000 ' /' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.50'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.49'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

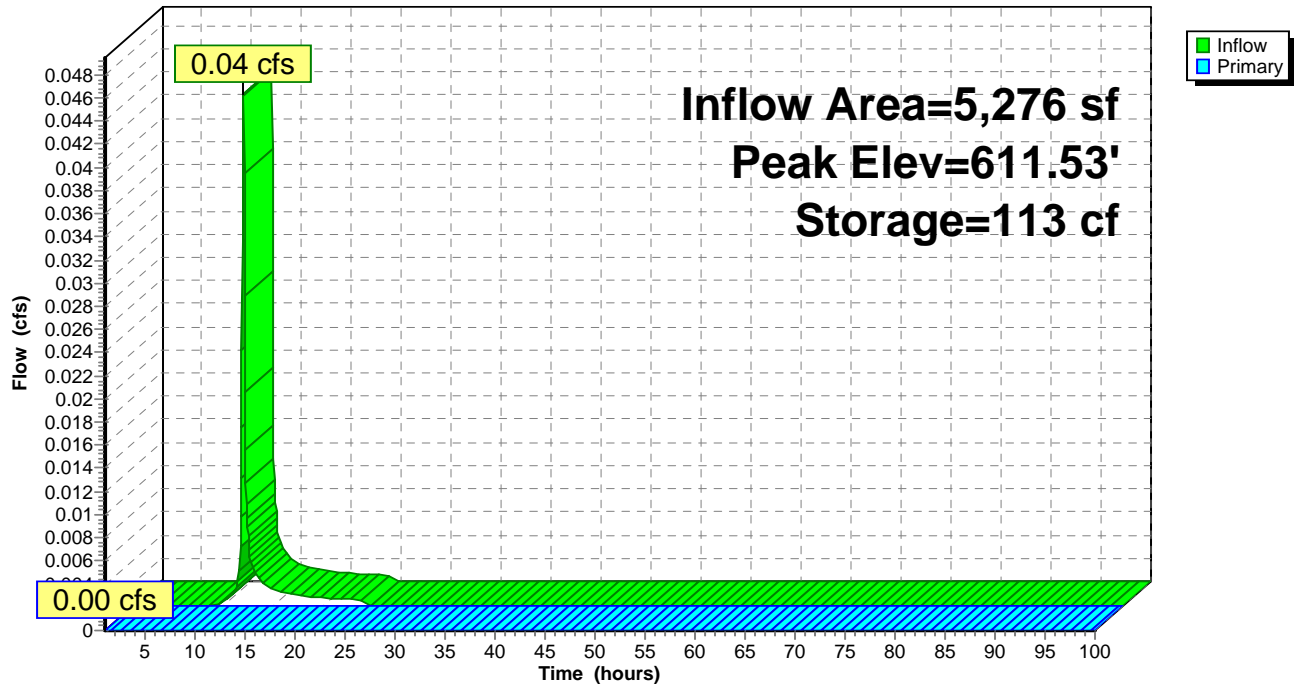
**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.50' TW=590.00' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)



## Pond DS 2: Planter PB-1A

Hydrograph



**Summary for Pond DS 28: DS 28**

Inflow Area = 9,492 sf, 98.75% Impervious, Inflow Depth = 0.18" for 75% event  
 Inflow = 0.04 cfs @ 12.04 hrs, Volume= 141 cf  
 Outflow = 0.04 cfs @ 12.04 hrs, Volume= 141 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.04 cfs @ 12.04 hrs, Volume= 141 cf

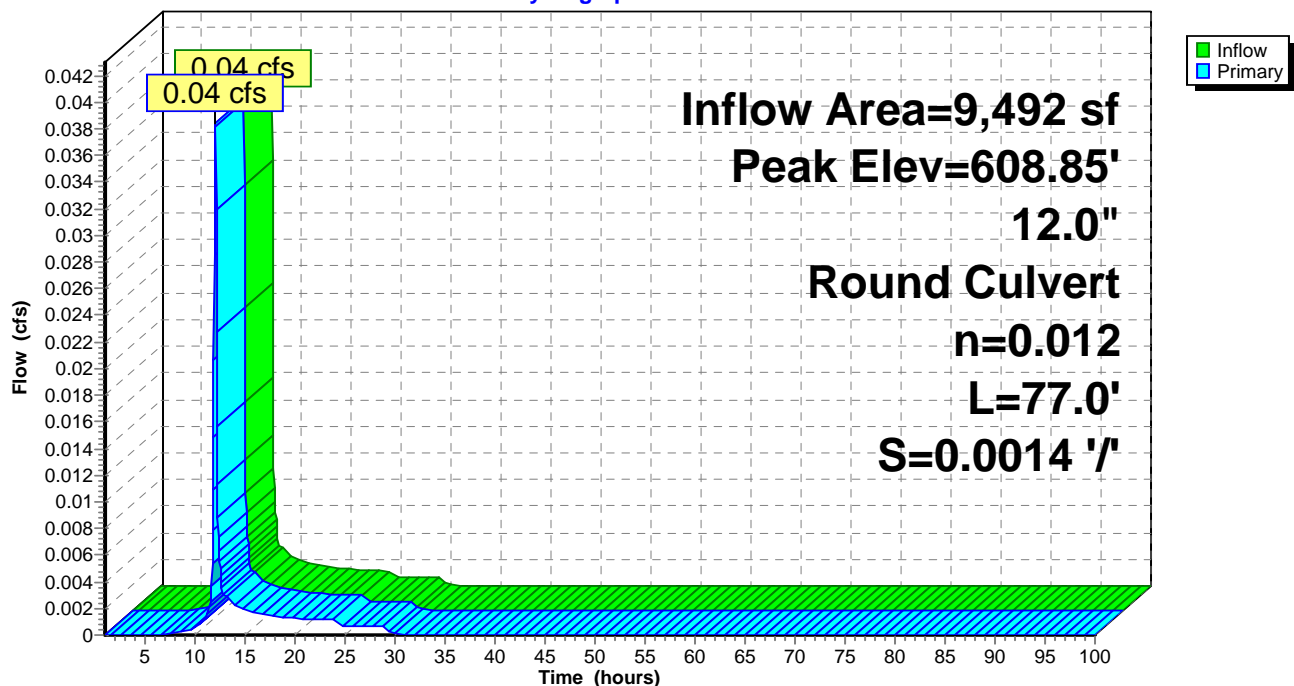
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 608.85' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.04 cfs @ 12.04 hrs HW=608.85' TW=590.26' (Dynamic Tailwater)  
 1=Culvert (Barrel Controls 0.04 cfs @ 0.84 fps)

**Pond DS 28: DS 28****Hydrograph**

**Summary for Pond DS 29: Planter PB-1B**

Inflow Area = 5,742 sf, 97.93% Impervious, Inflow Depth = 0.20" for 75% event  
 Inflow = 0.03 cfs @ 12.04 hrs, Volume= 94 cf  
 Outflow = 0.00 cfs @ 13.30 hrs, Volume= 42 cf, Atten= 98%, Lag= 75.8 min  
 Primary = 0.00 cfs @ 13.30 hrs, Volume= 42 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.65' @ 23.38 hrs Surf.Area= 101 sf Storage= 63 cf

Plug-Flow detention time= 574.6 min calculated for 42 cf (44% of inflow)  
 Center-of-Mass det. time= 390.7 min ( 1,276.2 - 885.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	609.10'	225 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
609.10	101	0.0	0	0
612.60	101	40.0	141	141
612.61	101	20.0	0	142
613.93	101	50.0	67	208
614.10	101	100.0	17	225

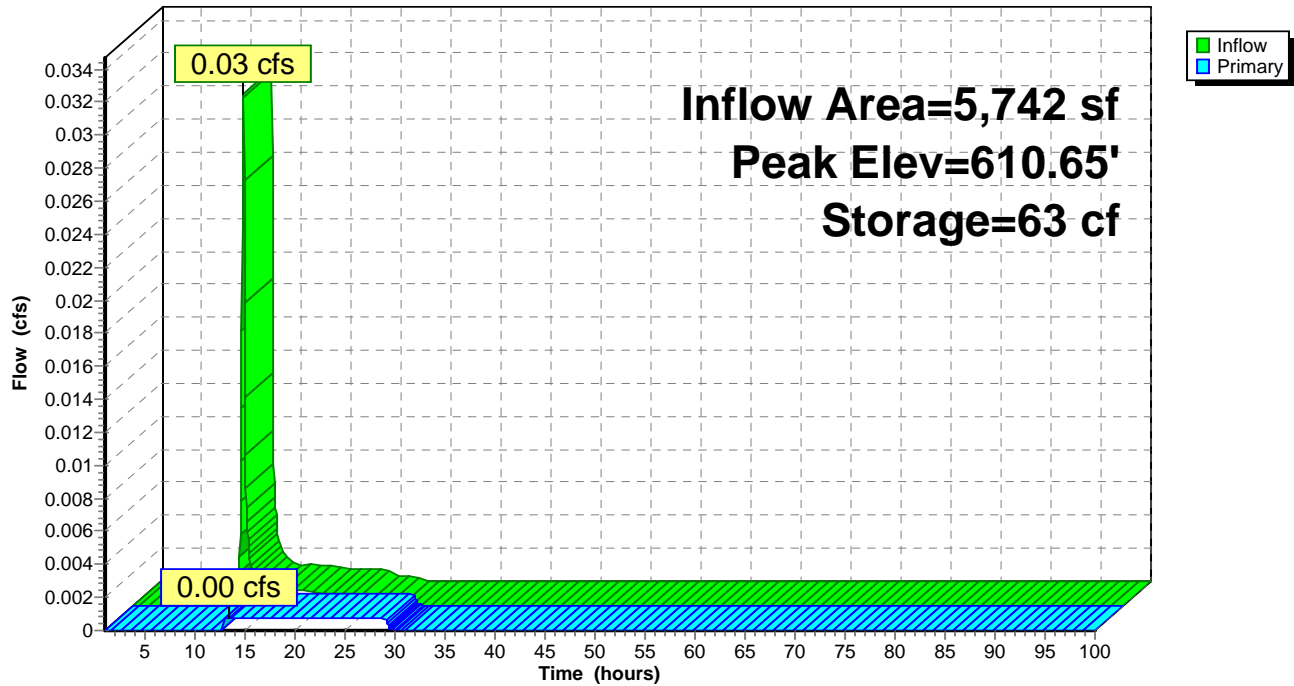
Device	Routing	Invert	Outlet Devices
#1	Primary	610.41'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.41' / 610.35' S= 0.0120 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.75'	<b>6.0" Round Culvert</b> L= 50.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 609.75' / 609.75' S= 0.0000 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	609.10'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.00'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 13.30 hrs HW=610.45' TW=608.75' (Dynamic Tailwater)

1=Culvert (Passes 0.00 cfs of 0.01 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 0.14 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate ( Controls 0.00 cfs)

Pond DS 29: Planter PB-1B

Hydrograph



### Summary for Pond DS 3: DS 3

Inflow Area = 34,149 sf, 98.47% Impervious, Inflow Depth = 0.31" for 75% event  
 Inflow = 0.31 cfs @ 12.06 hrs, Volume= 885 cf  
 Outflow = 0.31 cfs @ 12.06 hrs, Volume= 885 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.31 cfs @ 12.06 hrs, Volume= 885 cf  
 Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.01' @ 12.06 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.60'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.60' / 612.55' S= 0.0125 ' / ' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	613.60'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 613.60' / 613.55' S= 0.0083 ' / ' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

**Primary OutFlow** Max=0.31 cfs @ 12.06 hrs HW=613.01' TW=611.13' (Dynamic Tailwater)

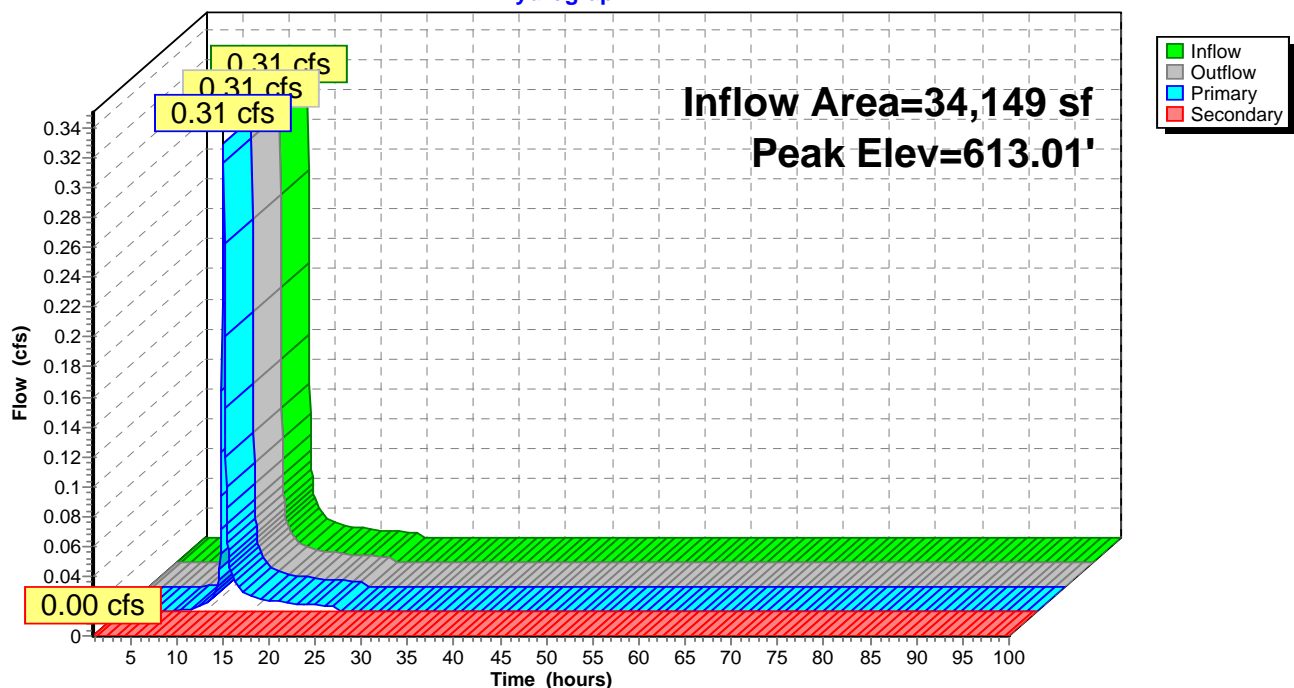
↑**1=Culvert** (Barrel Controls 0.31 cfs @ 2.43 fps)

**Secondary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=612.60' TW=590.00' (Dynamic Tailwater)

↑**2=Culvert** ( Controls 0.00 cfs)

### Pond DS 3: DS 3

Hydrograph



**Summary for Pond DS 30: Planter PB-2B**

Inflow Area = 2,715 sf, 98.42% Impervious, Inflow Depth = 0.32" for 75% event  
 Inflow = 0.03 cfs @ 12.04 hrs, Volume= 72 cf  
 Outflow = 0.00 cfs @ 16.20 hrs, Volume= 14 cf, Atten= 99%, Lag= 249.8 min  
 Primary = 0.00 cfs @ 16.20 hrs, Volume= 14 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 612.06' @ 22.17 hrs Surf.Area= 49 sf Storage= 61 cf

Plug-Flow detention time= 608.3 min calculated for 14 cf (20% of inflow)  
 Center-of-Mass det. time= 460.2 min ( 1,276.0 - 815.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	608.93'	109 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.93	49	0.0	0	0
612.43	49	40.0	69	69
612.44	49	20.0	0	69
613.76	49	50.0	32	101
613.93	49	100.0	8	109

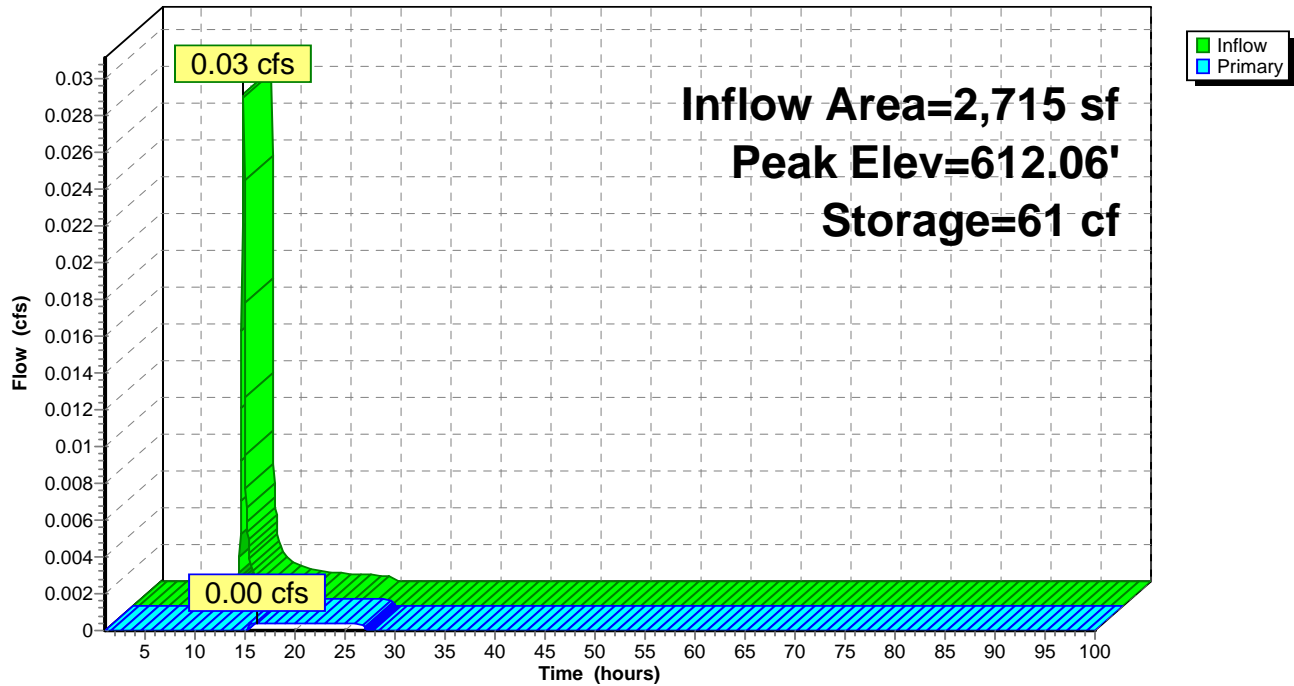
Device	Routing	Invert	Outlet Devices
#1	Primary	611.87'	<b>6.0" Round Culvert</b> L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.87' / 611.20' S= 0.0114 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.43'	<b>6.0" Round Culvert</b> L= 7.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.43' / 609.43' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.93'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.92'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 16.20 hrs HW=611.93' TW=610.57' (Dynamic Tailwater)

1=Culvert (Passes 0.00 cfs of 0.01 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 0.23 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 30: Planter PB-2B

Hydrograph



**Summary for Pond DS 4: Planter PB-2A**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=11)

Inflow Area = 34,149 sf, 98.47% Impervious, Inflow Depth = 0.31" for 75% event  
 Inflow = 0.31 cfs @ 12.06 hrs, Volume= 885 cf  
 Outflow = 0.01 cfs @ 23.55 hrs, Volume= 14 cf, Atten= 98%, Lag= 689.1 min  
 Primary = 0.01 cfs @ 23.55 hrs, Volume= 1,906 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 612.59' @ 24.11 hrs Surf.Area= 990 sf Storage= 872 cf

Plug-Flow detention time= 905.0 min calculated for 14 cf (2% of inflow)  
 Center-of-Mass det. time= 598.0 min ( 1,418.0 - 820.0 )

Volume	Invert	Avail.Storage	Storage Description	
#1	610.39'	1,715 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.39	990	0.0	0	0
613.89	990	40.0	1,386	1,386
613.90	395	20.0	1	1,387
615.22	395	50.0	261	1,648
615.39	395	100.0	67	1,715

Device	Routing	Invert	Outlet Devices
#1	Primary	612.48'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.48' / 612.41' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.89'	<b>6.0" Round Culvert</b> L= 60.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.89' / 610.89' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.39'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.37'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

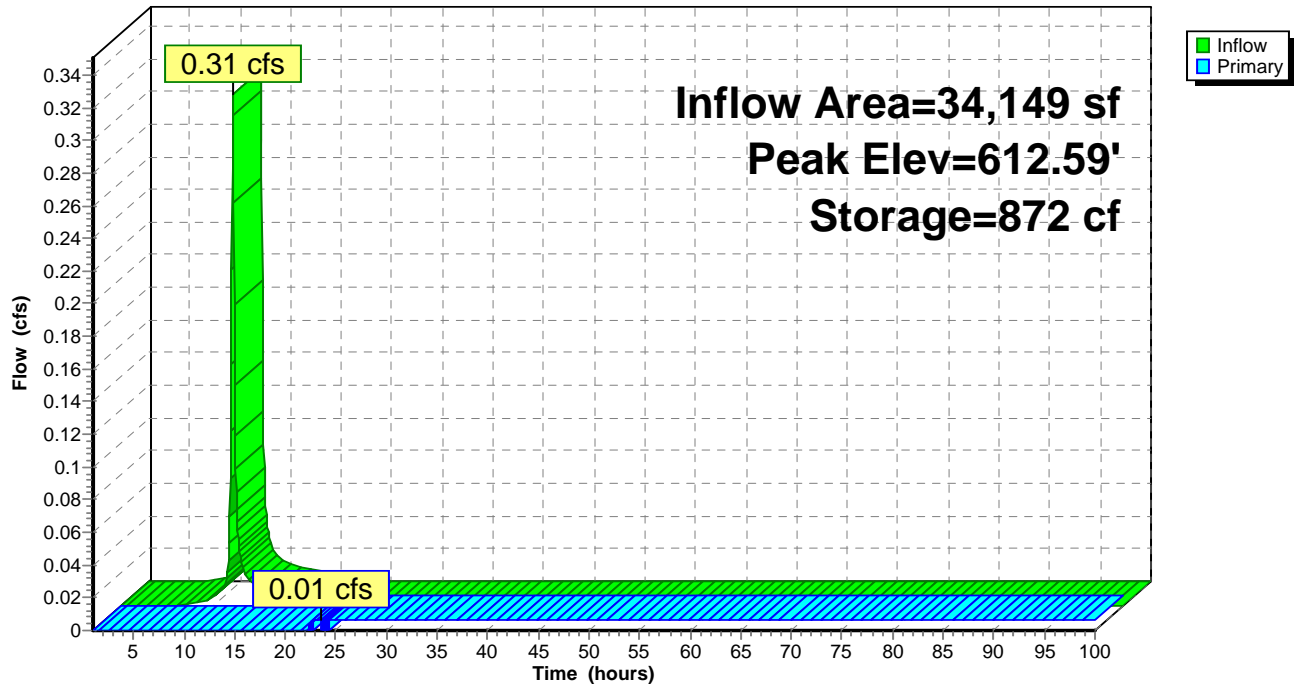
**Primary OutFlow** Max=0.00 cfs @ 23.55 hrs HW=612.59' TW=612.60' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)



## Pond DS 4: Planter PB-2A

Hydrograph



**Summary for Pond DS 5: Planter PB-3A**

Inflow Area = 2,103 sf, 92.44% Impervious, Inflow Depth = 0.26" for 75% event  
 Inflow = 0.02 cfs @ 12.04 hrs, Volume= 45 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.77' @ 24.70 hrs Surf.Area= 195 sf Storage= 45 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.19'	435 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.19	195	0.0	0	0
613.68	195	40.0	272	272
613.69	195	20.0	0	273
615.02	195	50.0	130	402
615.19	195	100.0	33	435

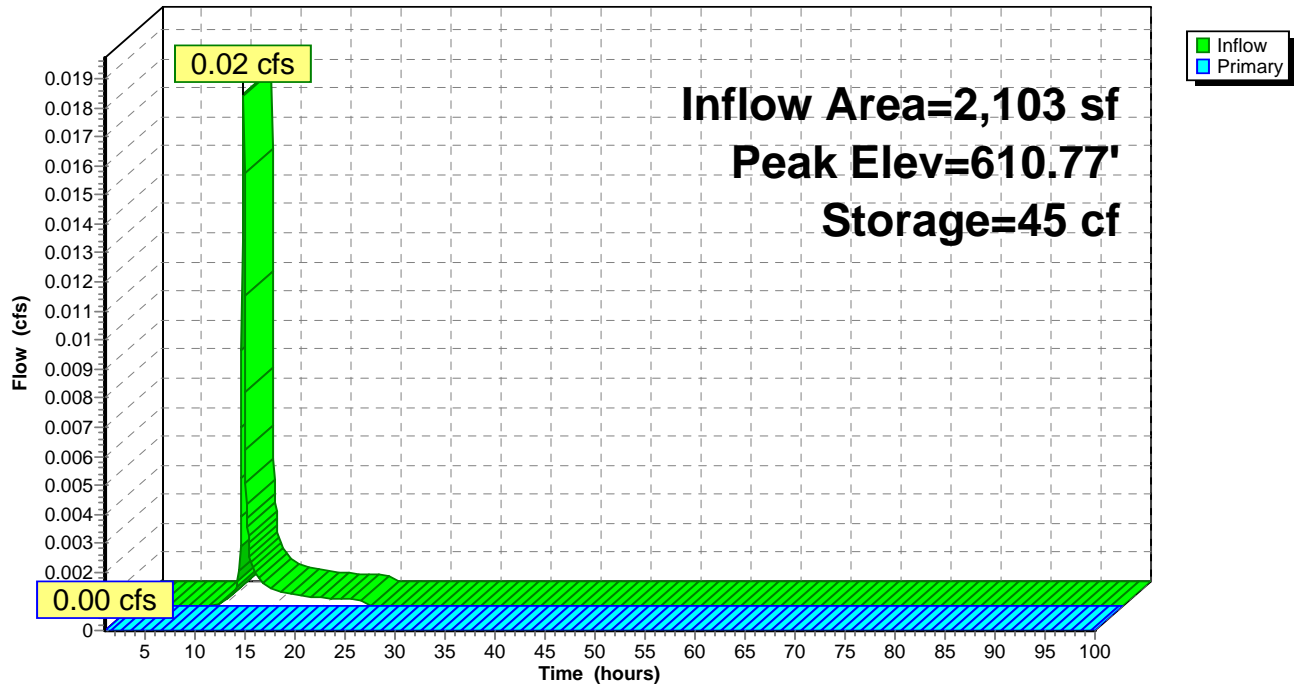
Device	Routing	Invert	Outlet Devices
#1	Primary	612.37'	<b>6.0" Round Culvert</b> L= 5.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.37' / 612.30' S= 0.0127 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.61'	<b>6.0" Round Culvert</b> L= 28.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.61' / 610.61' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.19'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.18'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.19' TW=612.54' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

Pond DS 5: Planter PB-3A

Hydrograph



## Summary for Pond DS 6: DS 6

[90] Warning: Qout>Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=123)

[80] Warning: Exceeded Pond DS 10 by 2.23' @ 11.95 hrs (0.01 cfs 3,226 cf)

[80] Warning: Exceeded Pond DS 11 by 2.56' @ 12.00 hrs (0.01 cfs 3,226 cf)

[80] Warning: Exceeded Pond DS 9 by 2.15' @ 11.95 hrs (0.01 cfs 326 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth = 0.13" for 75% event  
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 254 cf  
 Outflow = 0.10 cfs @ 12.04 hrs, Volume= 254 cf, Atten= 0%, Lag= 0.3 min  
 Primary = 0.10 cfs @ 12.04 hrs, Volume= 254 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.76' @ 12.04 hrs

Flood Elev= 647.22'

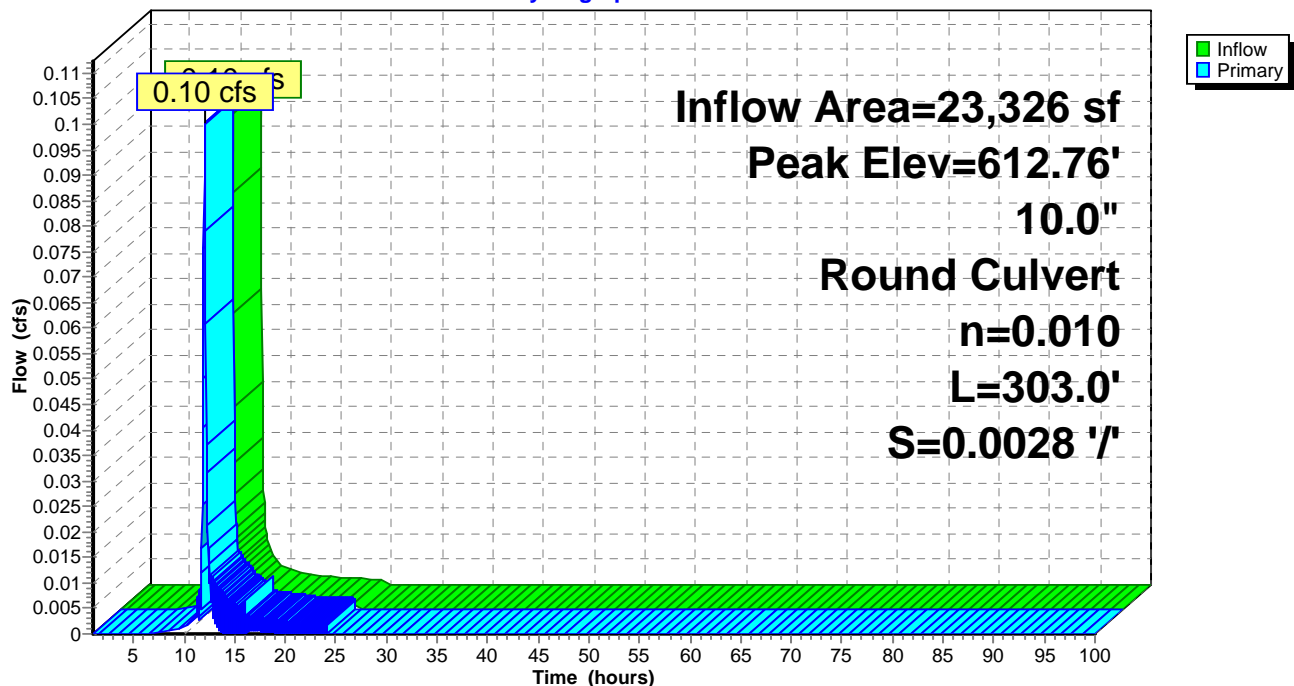
Device	Routing	Invert	Outlet Devices
#1	Primary	612.27'	<b>10.0" Round Culvert</b> L= 303.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.27' / 611.42' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.10 cfs @ 12.04 hrs HW=612.76' TW=612.73' (Dynamic Tailwater)

↑1=Culvert (Outlet Controls 0.10 cfs @ 0.42 fps)

## Pond DS 6: DS 6

## Hydrograph



**Summary for Pond DS 7: Planter PB-5A**

Inflow Area = 3,711 sf, 98.14% Impervious, Inflow Depth = 0.32" for 75% event  
 Inflow = 0.04 cfs @ 12.04 hrs, Volume= 98 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.84' @ 24.70 hrs Surf.Area= 234 sf Storage= 98 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.79'	397 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.79	234	0.0	0	0
614.28	234	40.0	327	327
614.29	84	20.0	0	327
615.62	84	50.0	56	383
615.79	84	100.0	14	397

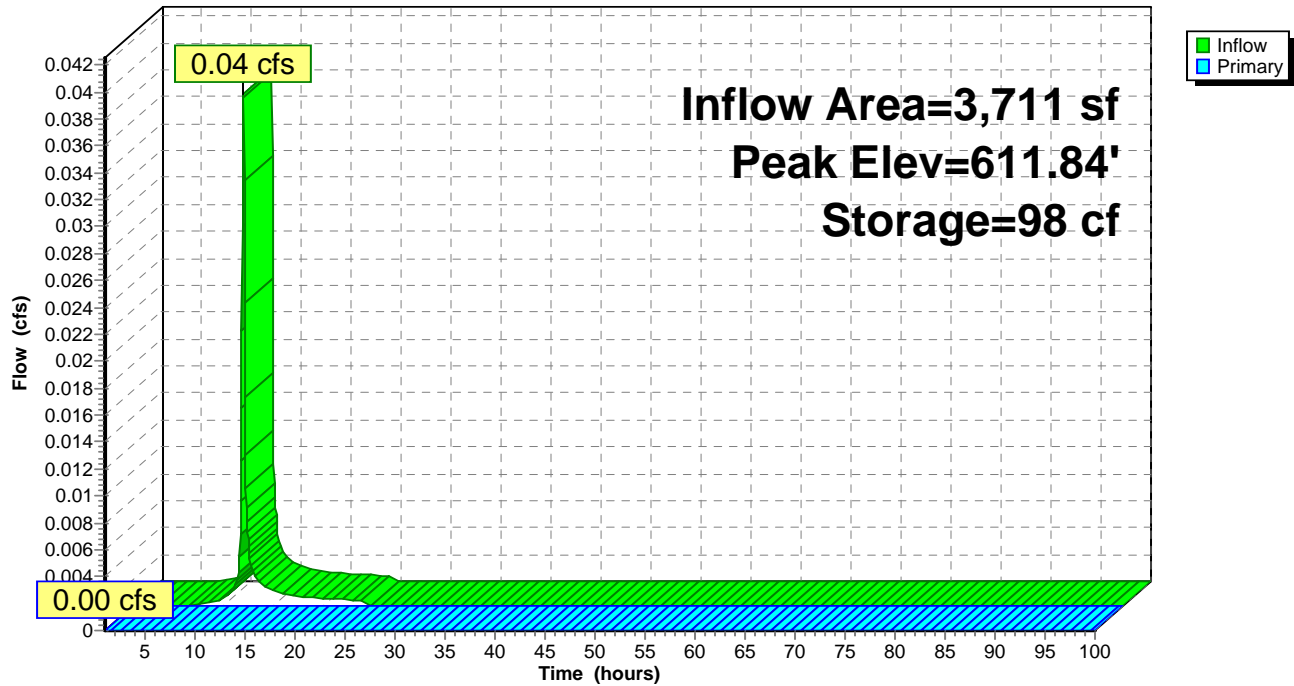
Device	Routing	Invert	Outlet Devices
#1	Primary	613.04'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.29'	<b>6.0" Round Culvert</b> L= 15.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.29' / 611.29' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.79'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.60'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.79' TW=612.27' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 7: Planter PB-5A

Hydrograph



**Summary for Pond DS 9: Planter PB-7A**

Inflow Area = 3,275 sf, 96.52% Impervious, Inflow Depth = 0.26" for 75% event  
 Inflow = 0.03 cfs @ 12.04 hrs, Volume= 70 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.94' @ 24.70 hrs Surf.Area= 391 sf Storage= 70 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.49'	665 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.49	391	0.0	0	0
613.99	391	40.0	547	547
614.00	141	20.0	1	548
615.32	141	50.0	93	641
615.49	141	100.0	24	665

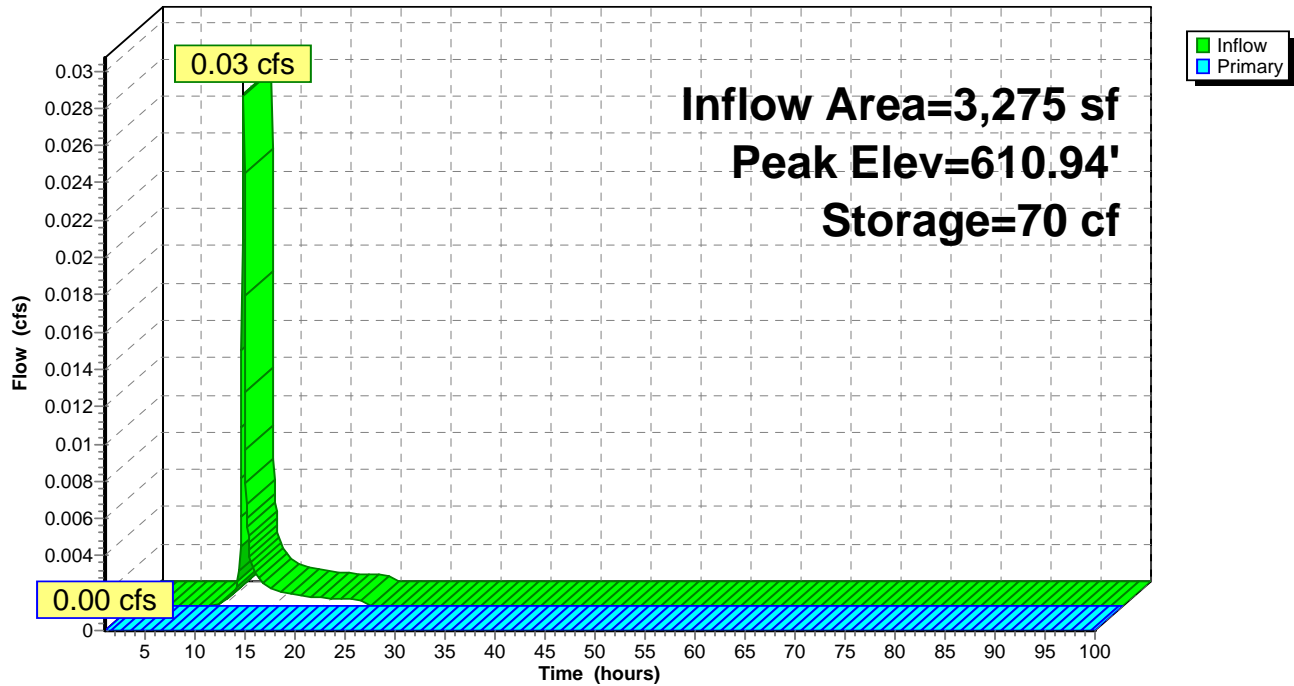
Device	Routing	Invert	Outlet Devices
#1	Primary	612.30'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.30' / 612.23' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.99'	<b>6.0" Round Culvert</b> L= 28.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.99' / 610.99' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.49'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.48'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.49' TW=612.27' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 9: Planter PB-7A

Hydrograph





## Summary for Pond DS-1: DS 1

[80] Warning: Exceeded Pond DS 15 by 2.54' @ 6.95 hrs (0.27 cfs 95,741 cf)

[80] Warning: Exceeded Pond DS 4 by 2.15' @ 6.60 hrs (0.01 cfs 2,425 cf)

[80] Warning: Exceeded Pond DS 5 by 2.38' @ 11.95 hrs (0.00 cfs 483 cf)

Inflow Area = 58,007 sf, 98.29% Impervious, Inflow Depth > 0.42" for 75% event  
 Inflow = 0.08 cfs @ 12.04 hrs, Volume= 2,008 cf  
 Outflow = 0.08 cfs @ 12.04 hrs, Volume= 2,009 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.08 cfs @ 12.04 hrs, Volume= 2,009 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.71' @ 12.04 hrs

Flood Elev= 647.22'

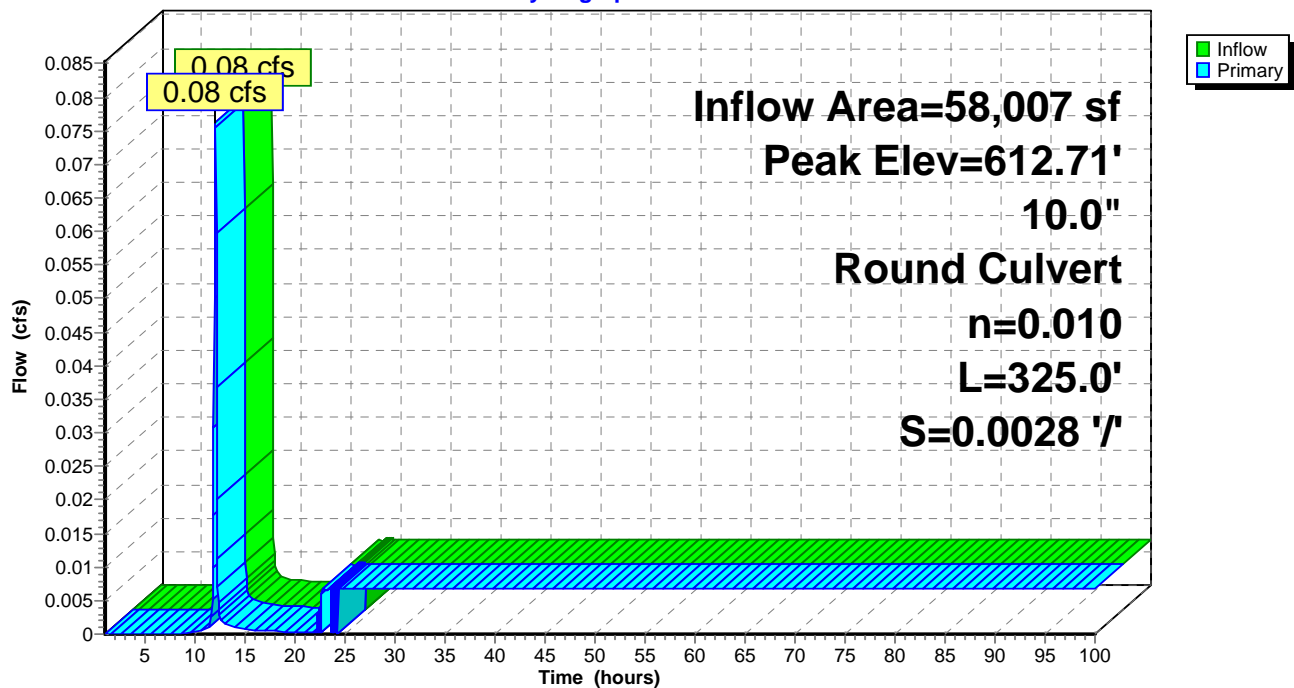
Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.07 cfs @ 12.04 hrs HW=612.71' TW=590.26' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 0.07 cfs @ 1.43 fps)

## Pond DS-1: DS 1

## Hydrograph



**Summary for Pond DS8: Planter PB-6A**

Inflow Area = 1,765 sf, 96.09% Impervious, Inflow Depth = 0.26" for 75% event  
 Inflow = 0.01 cfs @ 12.04 hrs, Volume= 38 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.03' @ 24.70 hrs Surf.Area= 235 sf Storage= 38 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.63'	399 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.63	235	0.0	0	0
614.13	235	40.0	329	329
614.14	84	20.0	0	329
615.46	84	50.0	55	385
615.63	84	100.0	14	399

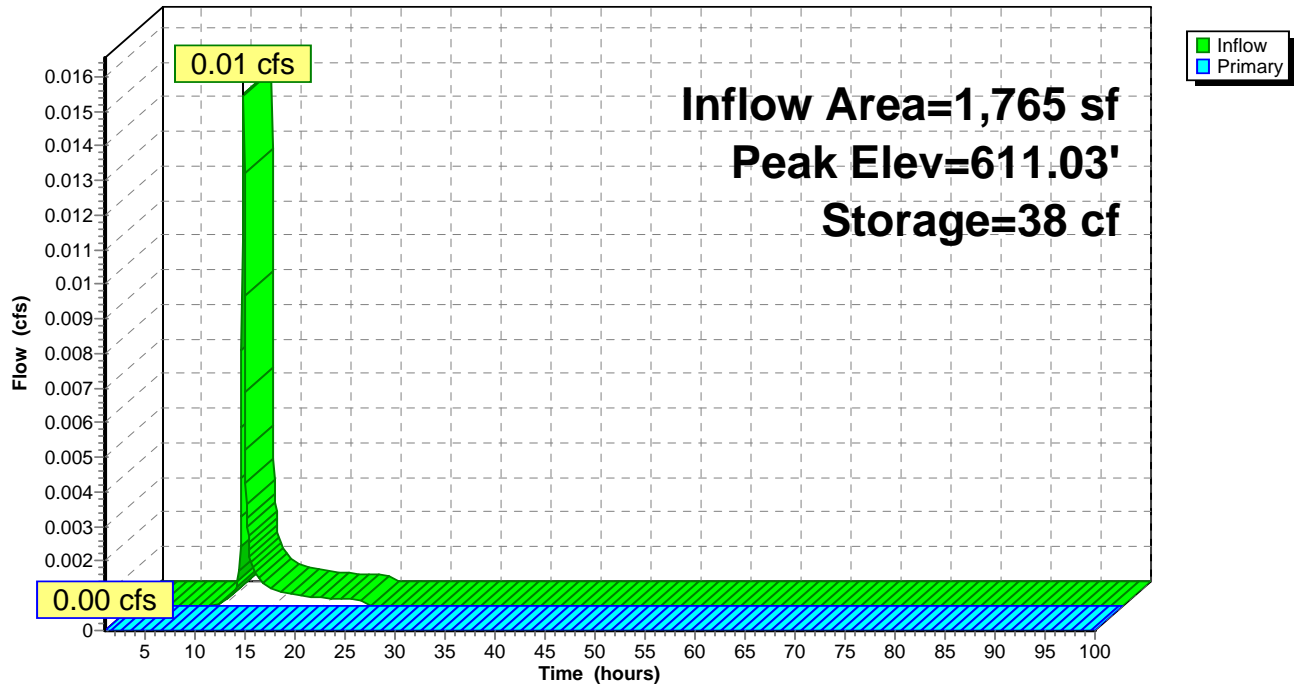
Device	Routing	Invert	Outlet Devices
#1	Primary	613.04'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.13'	<b>6.0" Round Culvert</b> L= 14.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.13' / 611.13' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.63'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.62'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.63' TW=612.27' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

Pond DS8: Planter PB-6A

Hydrograph



**Genesee St Final**

Prepared by Microsoft

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*Type II 24-hr WQv Rainfall=0.85"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 1: Area 1</b>	Runoff Area=5,276 sf 95.77% Impervious Runoff Depth=0.57" Tc=12.0 min CN=97 Runoff=0.10 cfs 249 cf
<b>Subcatchment 1M: Area 1M M and T Lot</b>	Runoff Area=30,210 sf 99.30% Impervious Runoff Depth=0.65" Tc=15.0 min CN=98 Runoff=0.56 cfs 1,627 cf
<b>Subcatchment 2: Area 2</b>	Runoff Area=3,939 sf 92.08% Impervious Runoff Depth=0.57" Tc=12.0 min CN=97 Runoff=0.07 cfs 186 cf
<b>Subcatchment 2M: Area 2M M and T Two</b>	Runoff Area=13,451 sf 100.00% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.27 cfs 724 cf
<b>Subcatchment 3: Area 3</b>	Runoff Area=2,103 sf 92.44% Impervious Runoff Depth=0.57" Tc=12.0 min CN=97 Runoff=0.04 cfs 99 cf
<b>Subcatchment 4: Area 4</b>	Runoff Area=6,163 sf 94.95% Impervious Runoff Depth=0.57" Tc=12.0 min CN=97 Runoff=0.11 cfs 291 cf
<b>Subcatchment 4B: Area 4B</b>	Runoff Area=2,141 sf 100.00% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.04 cfs 115 cf
<b>Subcatchment 5: Area 5</b>	Runoff Area=3,711 sf 98.14% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.07 cfs 200 cf
<b>Subcatchment 6: Area 6</b>	Runoff Area=1,765 sf 96.09% Impervious Runoff Depth=0.57" Tc=12.0 min CN=97 Runoff=0.03 cfs 83 cf
<b>Subcatchment 7: Area 7</b>	Runoff Area=3,275 sf 96.52% Impervious Runoff Depth=0.57" Tc=12.0 min CN=97 Runoff=0.06 cfs 154 cf
<b>Subcatchment 8: Area 8</b>	Runoff Area=2,841 sf 96.16% Impervious Runoff Depth=0.57" Tc=12.0 min CN=97 Runoff=0.05 cfs 134 cf
<b>Subcatchment 9: Area 9</b>	Runoff Area=2,159 sf 94.58% Impervious Runoff Depth=0.57" Tc=12.0 min CN=97 Runoff=0.04 cfs 102 cf
<b>Subcatchment 9A: Area 9A</b>	Runoff Area=4,063 sf 100.00% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.08 cfs 219 cf
<b>Subcatchment 9B: Area 9B</b>	Runoff Area=5,512 sf 100.00% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.11 cfs 297 cf
<b>Subcatchment 15: Area 15</b>	Runoff Area=3,027 sf 97.49% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.06 cfs 163 cf
<b>Subcatchment 15A: Area 15A</b>	Runoff Area=3,750 sf 100.00% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.08 cfs 202 cf

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*Type II 24-hr WQv Rainfall=0.85"*

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<b>Subcatchment 15B: Area 15B</b>	Runoff Area=16,790 sf 100.00% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.34 cfs 904 cf
<b>Subcatchment 16: Area 16</b>	Runoff Area=2,715 sf 98.42% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.05 cfs 146 cf
<b>Pond 84": 84" TRUNK SEWER</b>	Peak Elev=590.37' Inflow=0.79 cfs 4,507 cf 84.0" Round Culvert n=0.015 L=100.0' S=0.0020 '/ Outflow=0.79 cfs 4,523 cf
<b>Pond DI 868: DI #868</b>	Peak Elev=612.81' Inflow=0.19 cfs 515 cf 10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/ Outflow=0.19 cfs 516 cf
<b>Pond DS 10: Planter PB-8A</b>	Peak Elev=611.29' Storage=134 cf Inflow=0.05 cfs 134 cf Outflow=0.00 cfs 0 cf
<b>Pond DS 11: Planter PB-9A</b>	Peak Elev=610.77' Storage=102 cf Inflow=0.04 cfs 102 cf Outflow=0.00 cfs 0 cf
<b>Pond DS 14: DS 14</b>	Peak Elev=613.15' Inflow=0.38 cfs 1,015 cf Primary=0.24 cfs 870 cf Secondary=0.14 cfs 145 cf Outflow=0.38 cfs 1,015 cf
<b>Pond DS 15: Planter PB-4A</b>	Peak Elev=612.06' Storage=870 cf Inflow=0.24 cfs 870 cf Outflow=0.00 cfs 0 cf
<b>Pond DS 2: Planter PB-1A</b>	Peak Elev=612.66' Storage=236 cf Inflow=0.10 cfs 249 cf Outflow=0.00 cfs 15 cf
<b>Pond DS 28: DS 28</b>	Peak Elev=608.91' Inflow=0.08 cfs 401 cf 12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/ Outflow=0.08 cfs 403 cf
<b>Pond DS 29: Planter PB-1B</b>	Peak Elev=613.16' Storage=169 cf Inflow=0.06 cfs 252 cf Outflow=0.00 cfs 199 cf
<b>Pond DS 3: DS 3</b>	Peak Elev=613.69' Inflow=0.62 cfs 1,813 cf Primary=0.62 cfs 1,576 cf Secondary=0.02 cfs 237 cf Outflow=0.62 cfs 1,813 cf
<b>Pond DS 30: Planter PB-2B</b>	Peak Elev=613.92' Storage=109 cf Inflow=0.05 cfs 146 cf Outflow=0.00 cfs 89 cf
<b>Pond DS 4: Planter PB-2A</b>	Peak Elev=613.69' Storage=1,306 cf Inflow=0.62 cfs 1,576 cf Outflow=0.01 cfs 705 cf
<b>Pond DS 5: Planter PB-3A</b>	Peak Elev=611.46' Storage=99 cf Inflow=0.04 cfs 99 cf Outflow=0.00 cfs 0 cf
<b>Pond DS 6: DS 6</b>	Peak Elev=612.86' Inflow=0.19 cfs 516 cf 10.0" Round Culvert n=0.010 L=303.0' S=0.0028 '/ Outflow=0.19 cfs 515 cf
<b>Pond DS 7: Planter PB-5A</b>	Peak Elev=612.93' Storage=200 cf Inflow=0.07 cfs 200 cf Outflow=0.00 cfs 0 cf
<b>Pond DS 9: Planter PB-7A</b>	Peak Elev=611.48' Storage=154 cf Inflow=0.06 cfs 154 cf Outflow=0.00 cfs 0 cf

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**Pond DS-1: DS 1**

Peak Elev=612.80' Inflow=0.18 cfs 2,433 cf  
10.0" Round Culvert n=0.010 L=325.0' S=0.0028 '/' Outflow=0.18 cfs 2,433 cf

**Pond DS8: Planter PB-6A**

Peak Elev=611.52' Storage=83 cf Inflow=0.03 cfs 83 cf  
Outflow=0.00 cfs 0 cf

**Total Runoff Area = 112,891 sf   Runoff Volume = 5,895 cf   Average Runoff Depth = 0.63"**  
**1.61% Pervious = 1,812 sf   98.39% Impervious = 111,079 sf**

**Summary for Subcatchment 1: Area 1**

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 249 cf, Depth= 0.57"

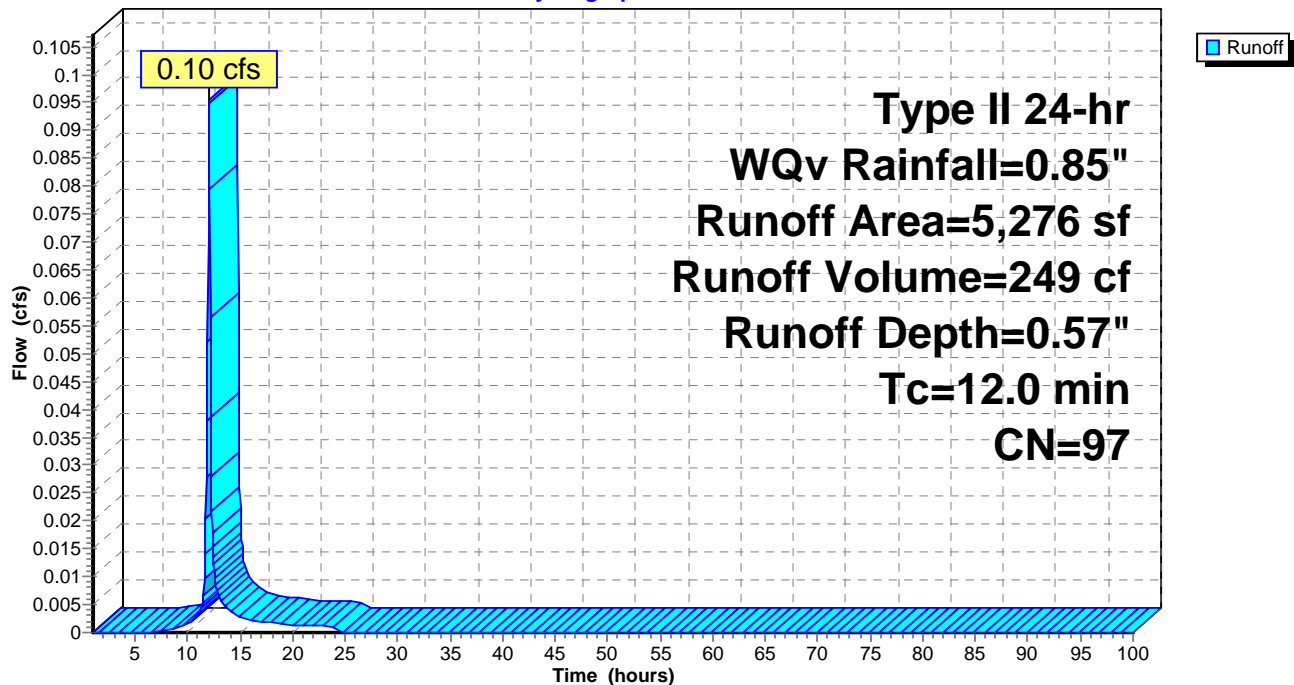
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
223	80	>75% Grass cover, Good, HSG D
5,053	98	Paved parking, HSG D
5,276	97	Weighted Average
223		4.23% Pervious Area
5,053		95.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 1: Area 1**

Hydrograph



**Summary for Subcatchment 1M: Area 1M M and T Lot one**

Runoff = 0.56 cfs @ 12.06 hrs, Volume= 1,627 cf, Depth= 0.65"

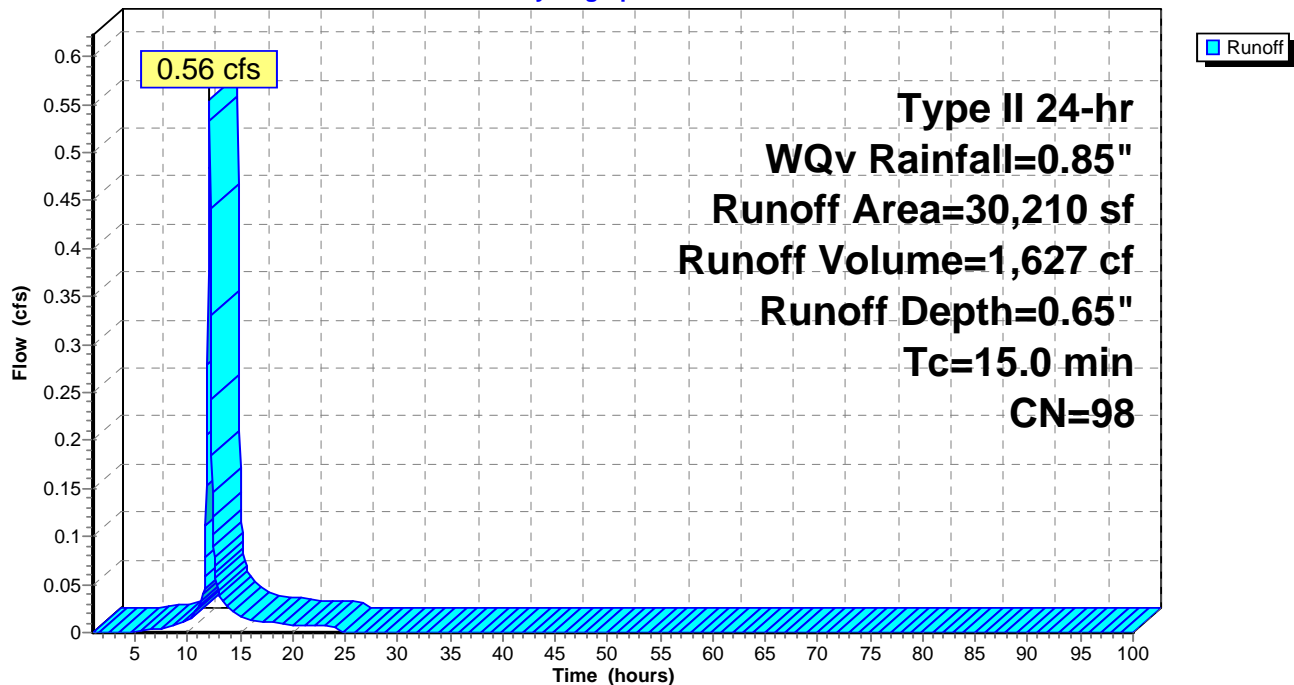
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
210	80	>75% Grass cover, Good, HSG D
30,000	98	Paved parking, HSG D
30,210	98	Weighted Average
210		0.70% Pervious Area
30,000		99.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					Direct Entry,

**Subcatchment 1M: Area 1M M and T Lot one**

Hydrograph





**Summary for Subcatchment 2: Area 2**

Runoff = 0.07 cfs @ 12.04 hrs, Volume= 186 cf, Depth= 0.57"

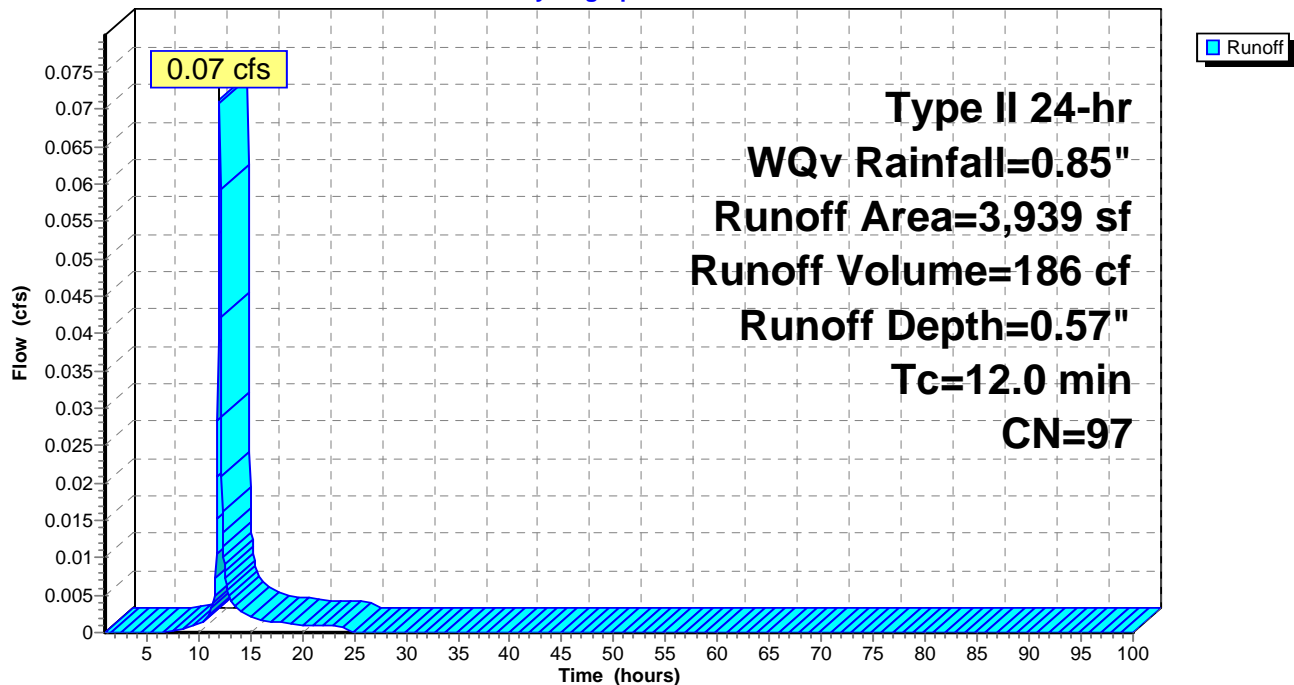
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
312	80	>75% Grass cover, Good, HSG D
3,627	98	Paved parking, HSG D
3,939	97	Weighted Average
312		7.92% Pervious Area
3,627		92.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 2: Area 2**

Hydrograph



**Summary for Subcatchment 2M: Area 2M M and T Two**

Runoff = 0.27 cfs @ 12.03 hrs, Volume= 724 cf, Depth= 0.65"

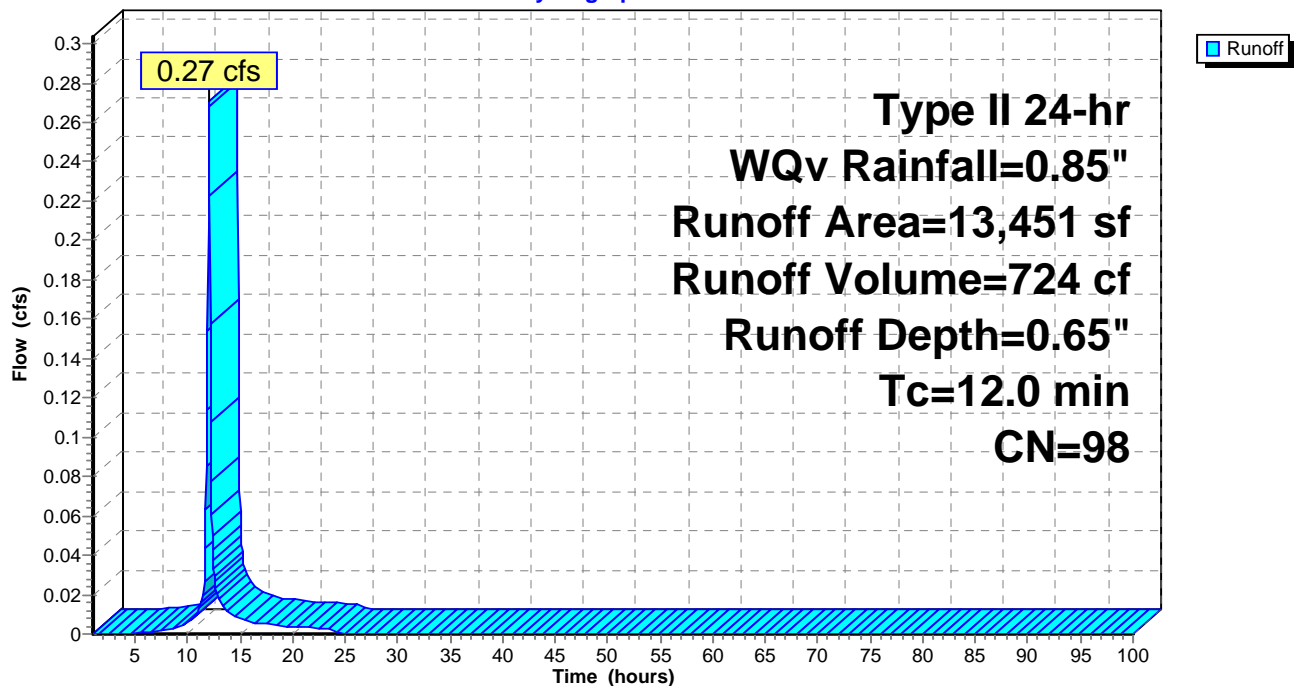
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
13,451	98	Paved parking, HSG D
13,451		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 2M: Area 2M M and T Two**

Hydrograph



**Summary for Subcatchment 3: Area 3**

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 99 cf, Depth= 0.57"

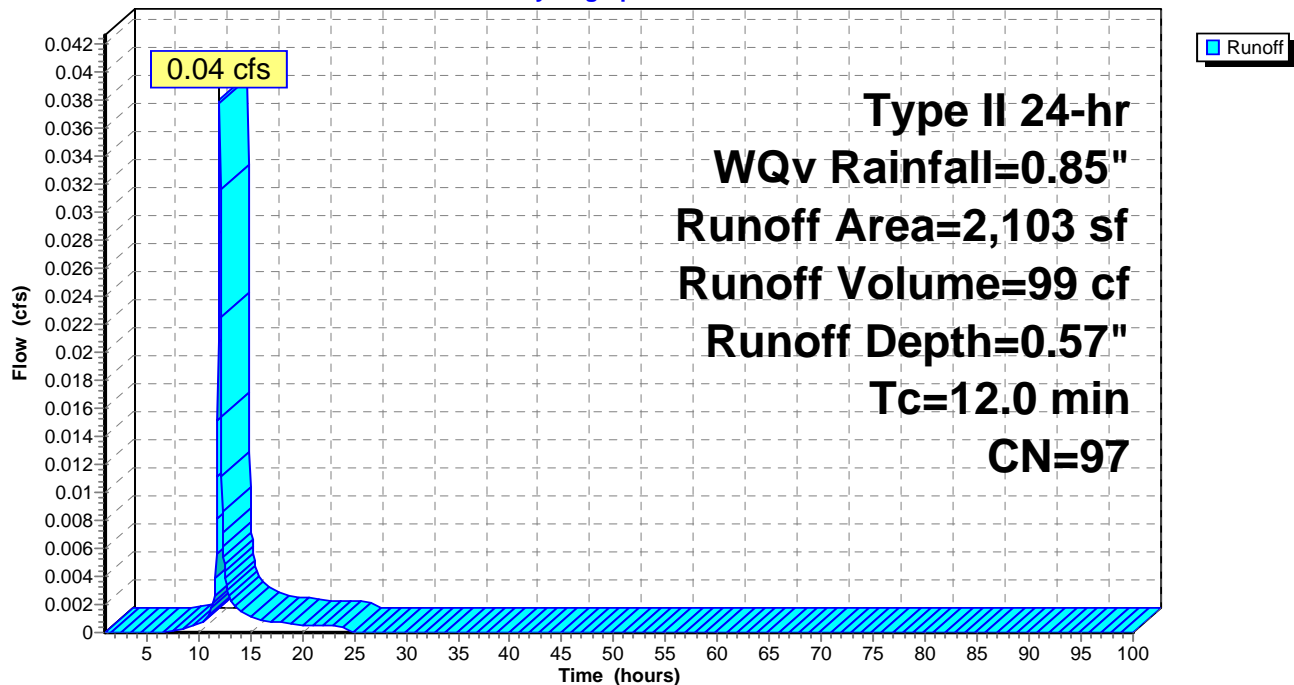
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
159	80	>75% Grass cover, Good, HSG D
1,944	98	Paved parking, HSG D
2,103	97	Weighted Average
159		7.56% Pervious Area
1,944		92.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 3: Area 3**

Hydrograph



**Summary for Subcatchment 4: Area 4**

Runoff = 0.11 cfs @ 12.04 hrs, Volume= 291 cf, Depth= 0.57"

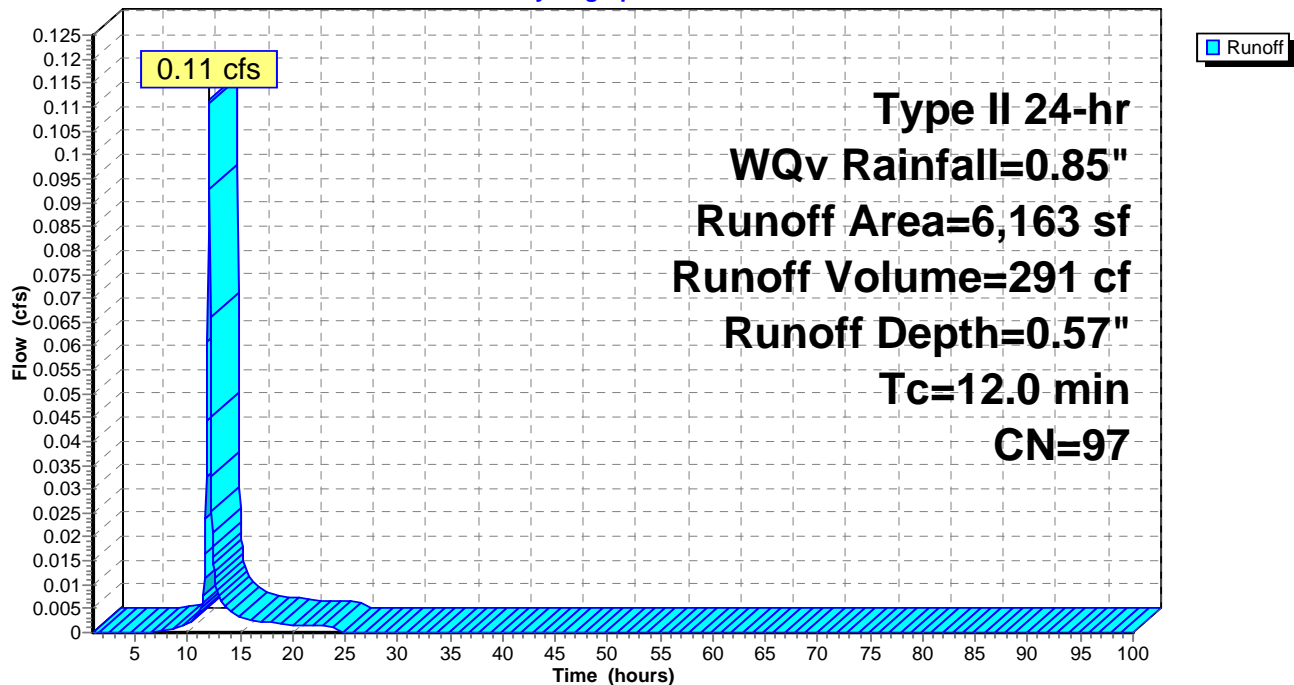
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
311	80	>75% Grass cover, Good, HSG D
5,852	98	Paved parking, HSG D
6,163	97	Weighted Average
311		5.05% Pervious Area
5,852		94.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 4: Area 4**

Hydrograph



**Summary for Subcatchment 4B: Area 4B**

Runoff = 0.04 cfs @ 12.03 hrs, Volume= 115 cf, Depth= 0.65"

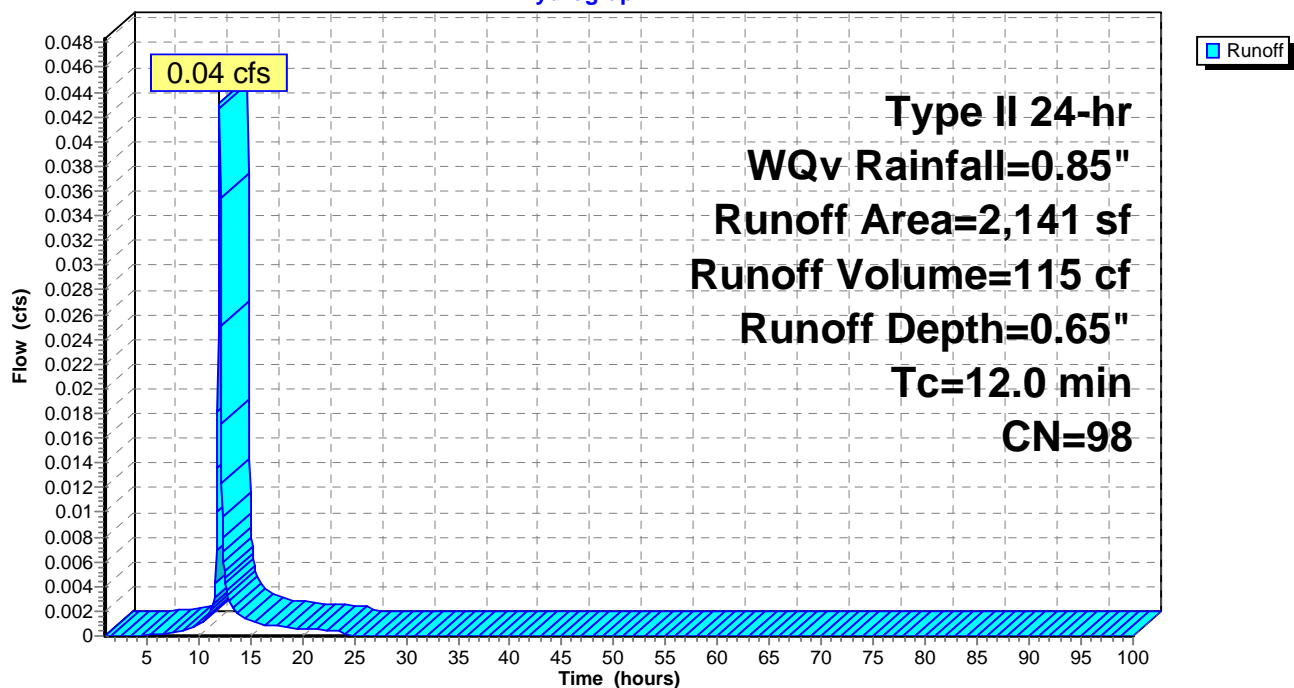
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
2,141	98	Paved parking, HSG D
2,141		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 4B: Area 4B**

Hydrograph



**Summary for Subcatchment 5: Area 5**

Runoff = 0.07 cfs @ 12.03 hrs, Volume= 200 cf, Depth= 0.65"

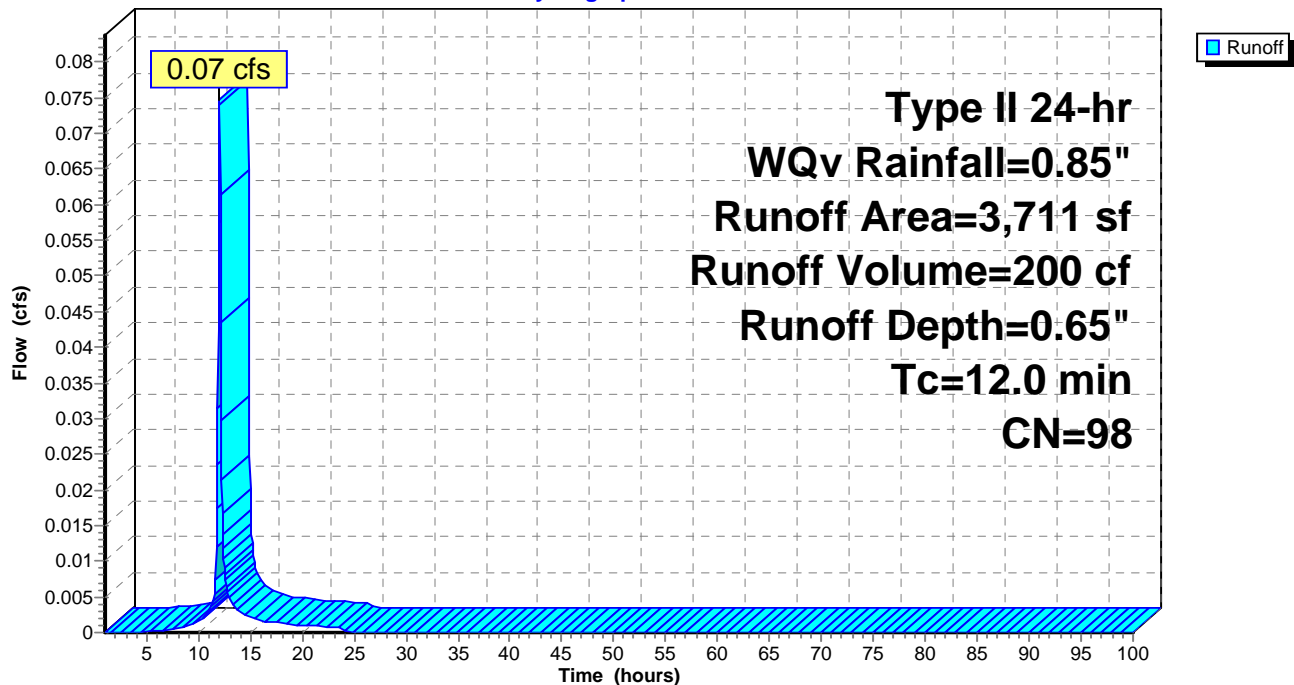
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
69	80	>75% Grass cover, Good, HSG D
3,642	98	Paved parking, HSG D
3,711	98	Weighted Average
69		1.86% Pervious Area
3,642		98.14% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 5: Area 5**

Hydrograph



**Summary for Subcatchment 6: Area 6**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 83 cf, Depth= 0.57"

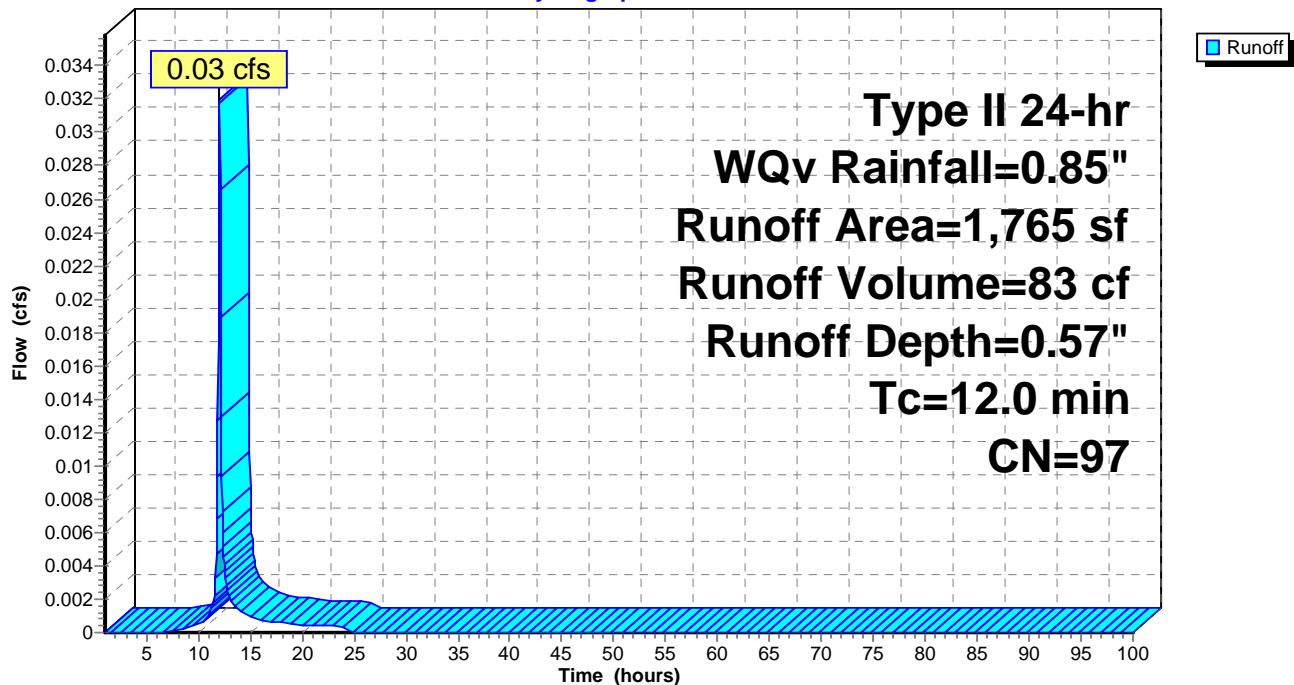
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
69	80	>75% Grass cover, Good, HSG D
1,696	98	Paved parking, HSG D
1,765	97	Weighted Average
69		3.91% Pervious Area
1,696		96.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 6: Area 6**

Hydrograph



**Summary for Subcatchment 7: Area 7**

Runoff = 0.06 cfs @ 12.04 hrs, Volume= 154 cf, Depth= 0.57"

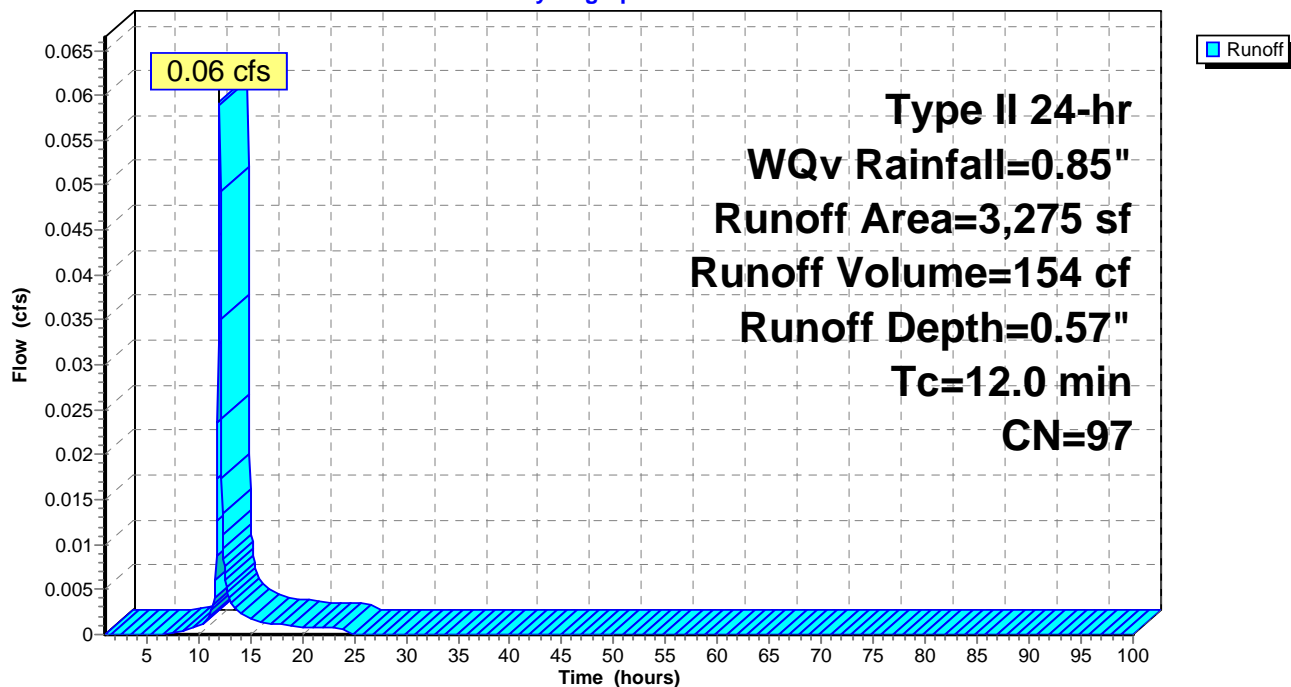
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
114	80	>75% Grass cover, Good, HSG D
3,161	98	Paved parking, HSG D
3,275	97	Weighted Average
114		3.48% Pervious Area
3,161		96.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 7: Area 7**

Hydrograph





**Summary for Subcatchment 8: Area 8**

Runoff = 0.05 cfs @ 12.04 hrs, Volume= 134 cf, Depth= 0.57"

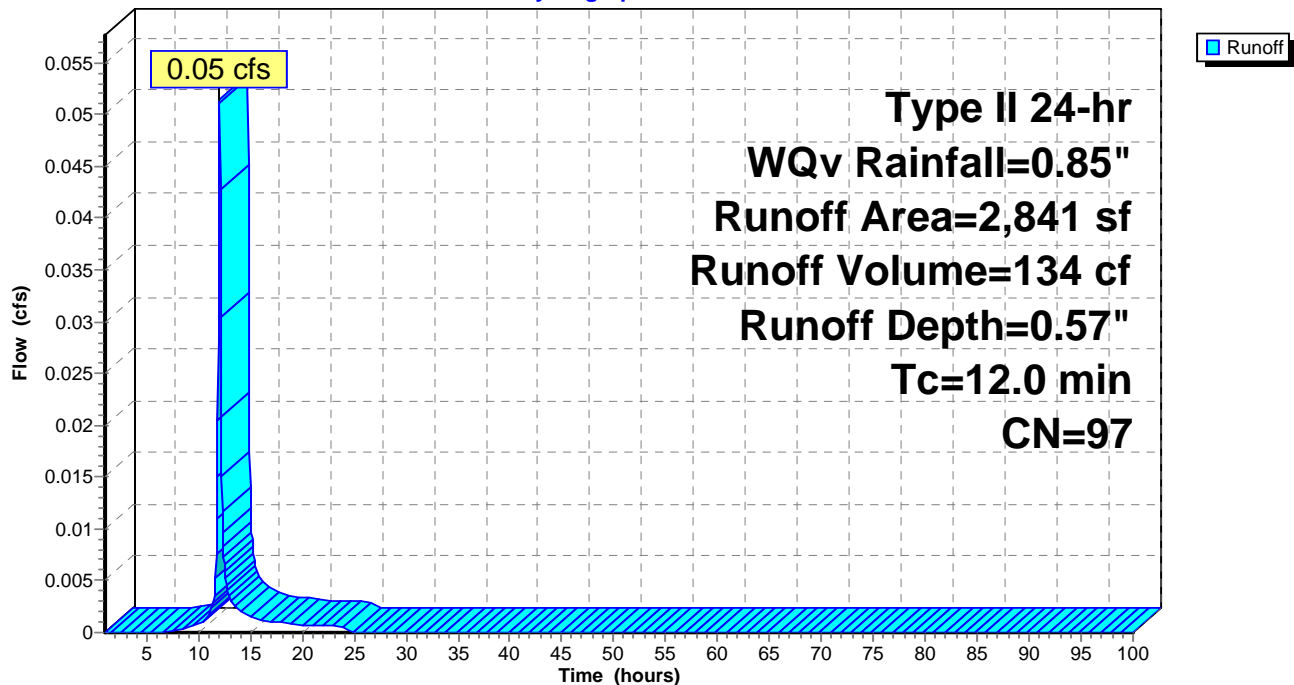
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
109	80	>75% Grass cover, Good, HSG D
2,732	98	Paved parking, HSG D
2,841	97	Weighted Average
109		3.84% Pervious Area
2,732		96.16% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 8: Area 8**

Hydrograph



**Summary for Subcatchment 9: Area 9**

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 102 cf, Depth= 0.57"

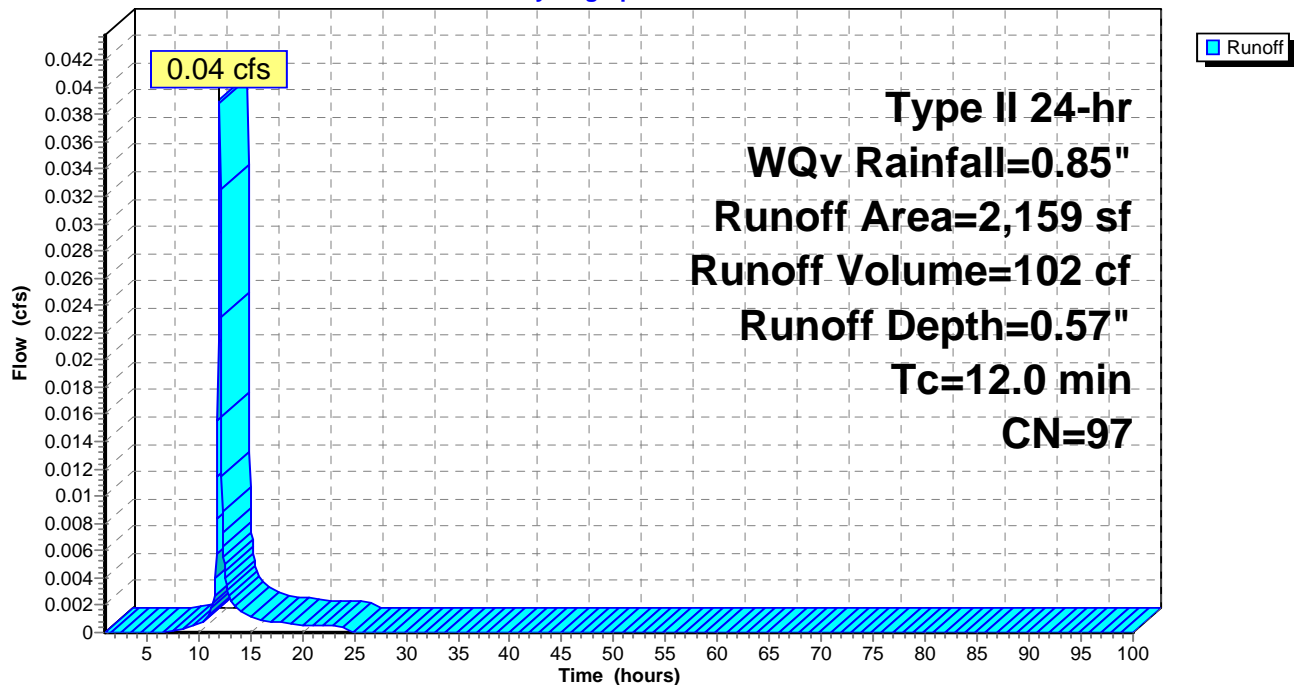
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
117	80	>75% Grass cover, Good, HSG D
2,042	98	Paved parking, HSG D
2,159	97	Weighted Average
117		5.42% Pervious Area
2,042		94.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9: Area 9**

Hydrograph



**Summary for Subcatchment 9A: Area 9A**

Runoff = 0.08 cfs @ 12.03 hrs, Volume= 219 cf, Depth= 0.65"

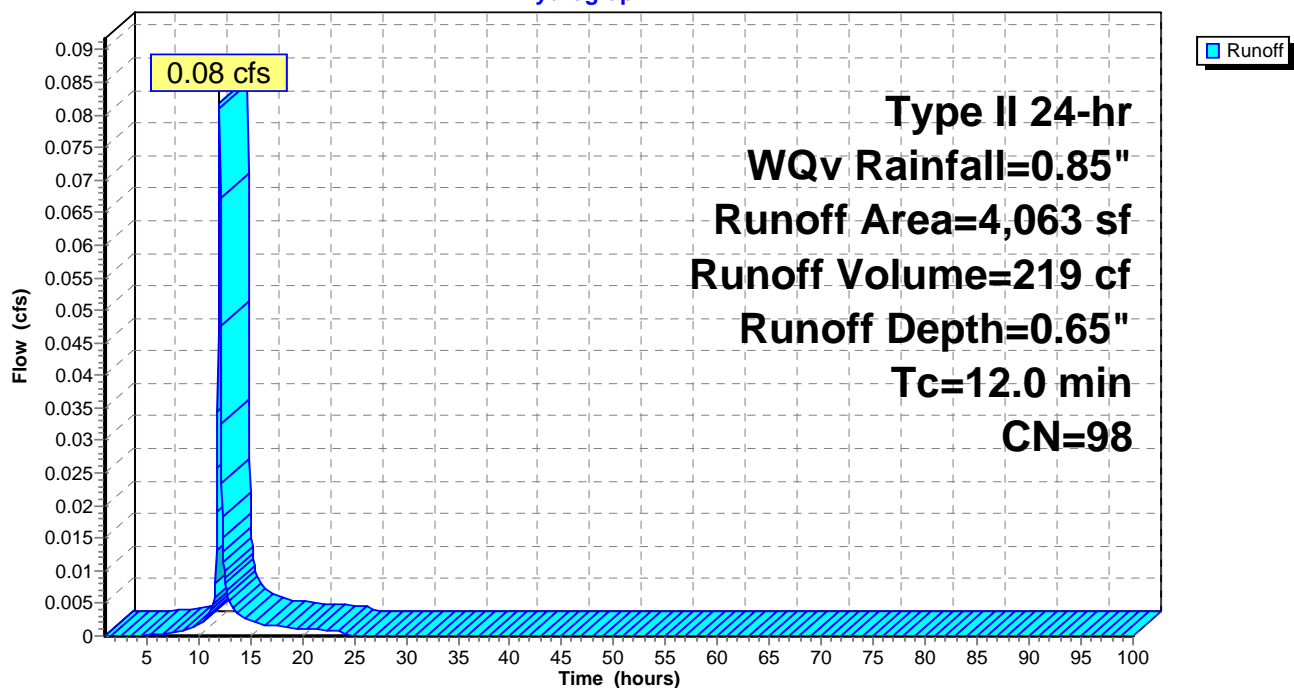
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
4,063	98	Paved parking, HSG D
4,063		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9A: Area 9A**

Hydrograph



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Type II 24-hr WQv Rainfall=0.85"

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**Summary for Subcatchment 9B: Area 9B**

Runoff = 0.11 cfs @ 12.03 hrs, Volume= 297 cf, Depth= 0.65"

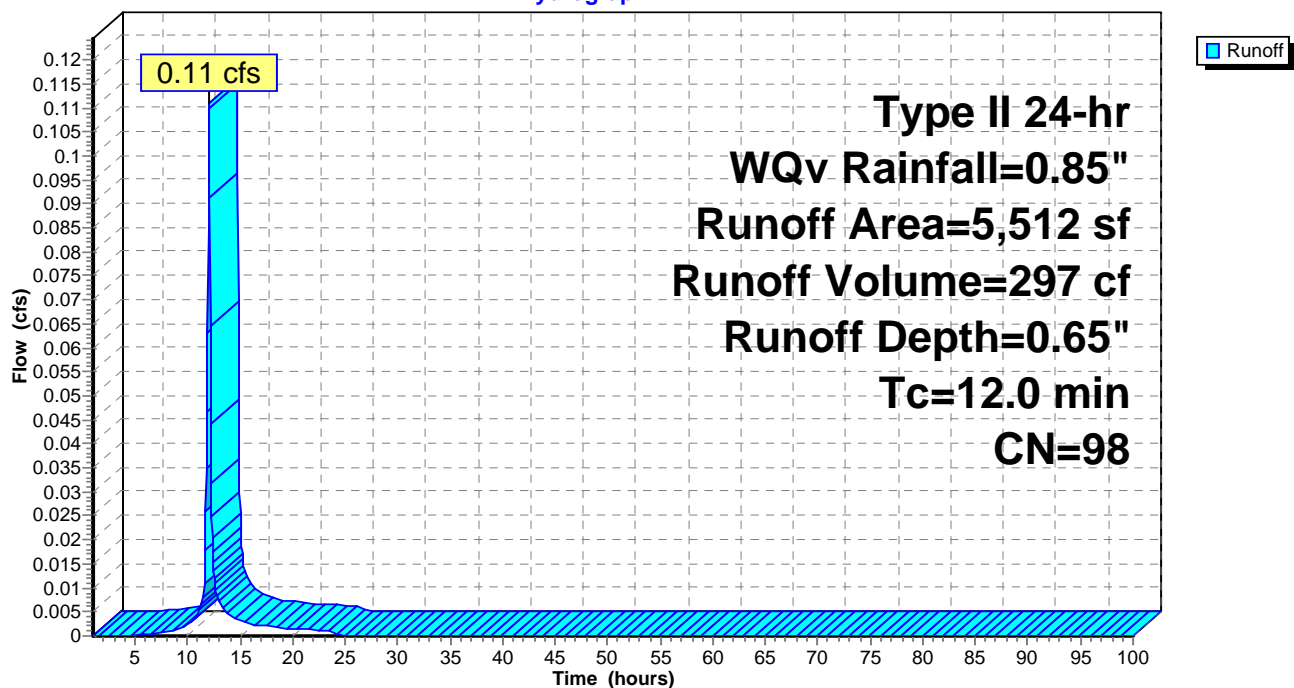
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
5,512	98	Paved parking, HSG D
5,512		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 9B: Area 9B**

Hydrograph



**Summary for Subcatchment 15: Area 15**

Runoff = 0.06 cfs @ 12.03 hrs, Volume= 163 cf, Depth= 0.65"

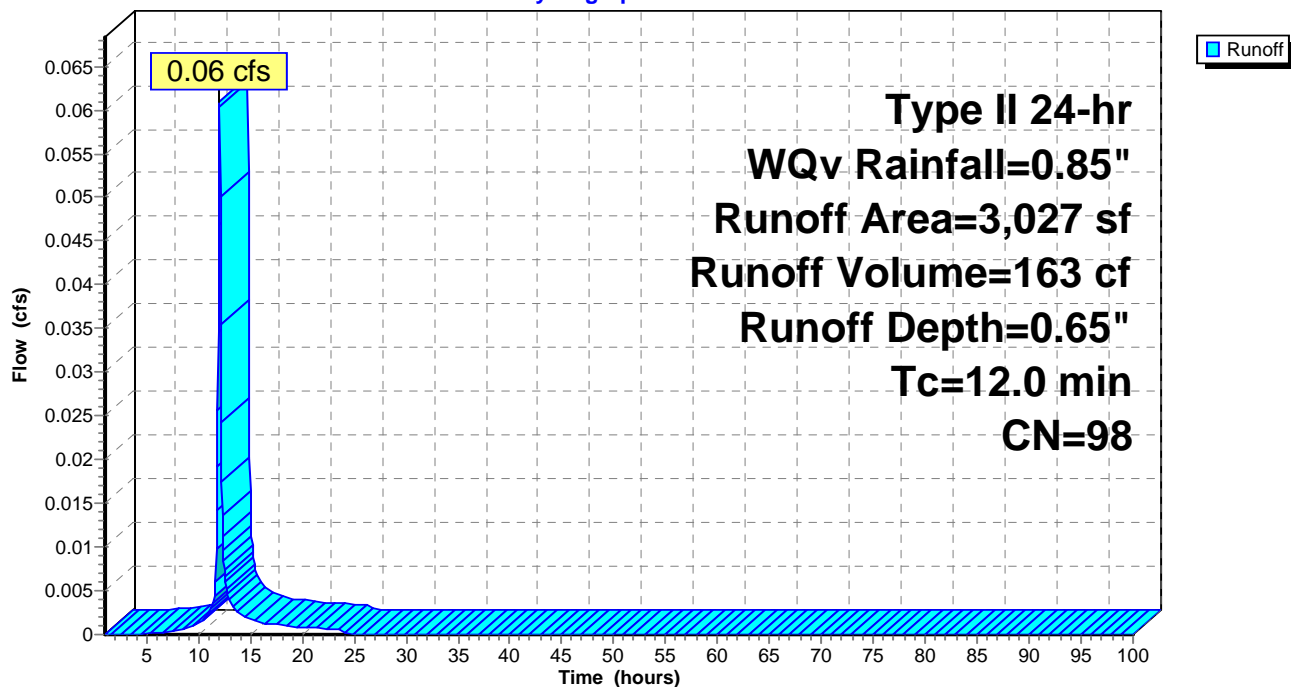
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
76	80	>75% Grass cover, Good, HSG D
2,951	98	Paved parking, HSG D
3,027	98	Weighted Average
76		2.51% Pervious Area
2,951		97.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 15: Area 15**

Hydrograph



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Type II 24-hr WQv Rainfall=0.85"

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**Summary for Subcatchment 15A: Area 15A**

Runoff = 0.08 cfs @ 12.03 hrs, Volume= 202 cf, Depth= 0.65"

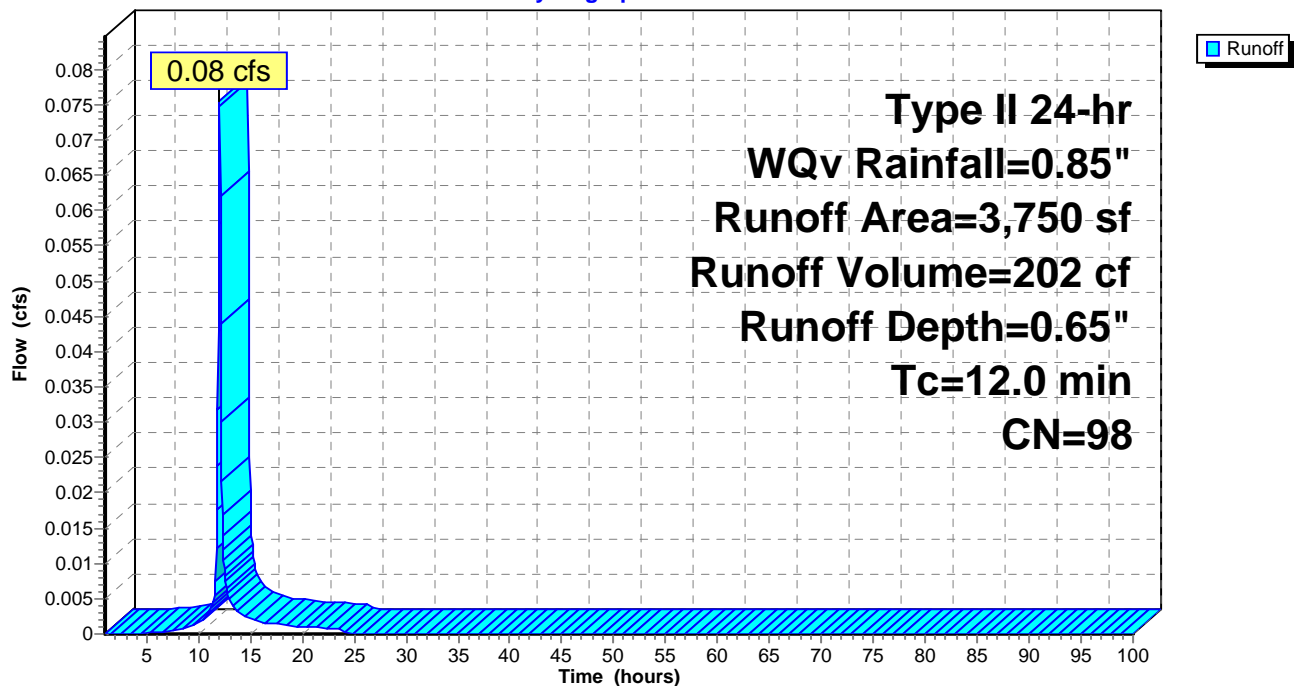
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
3,750	98	Paved parking, HSG D
3,750		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 15A: Area 15A**

Hydrograph



**Summary for Subcatchment 15B: Area 15B**

Runoff = 0.34 cfs @ 12.03 hrs, Volume= 904 cf, Depth= 0.65"

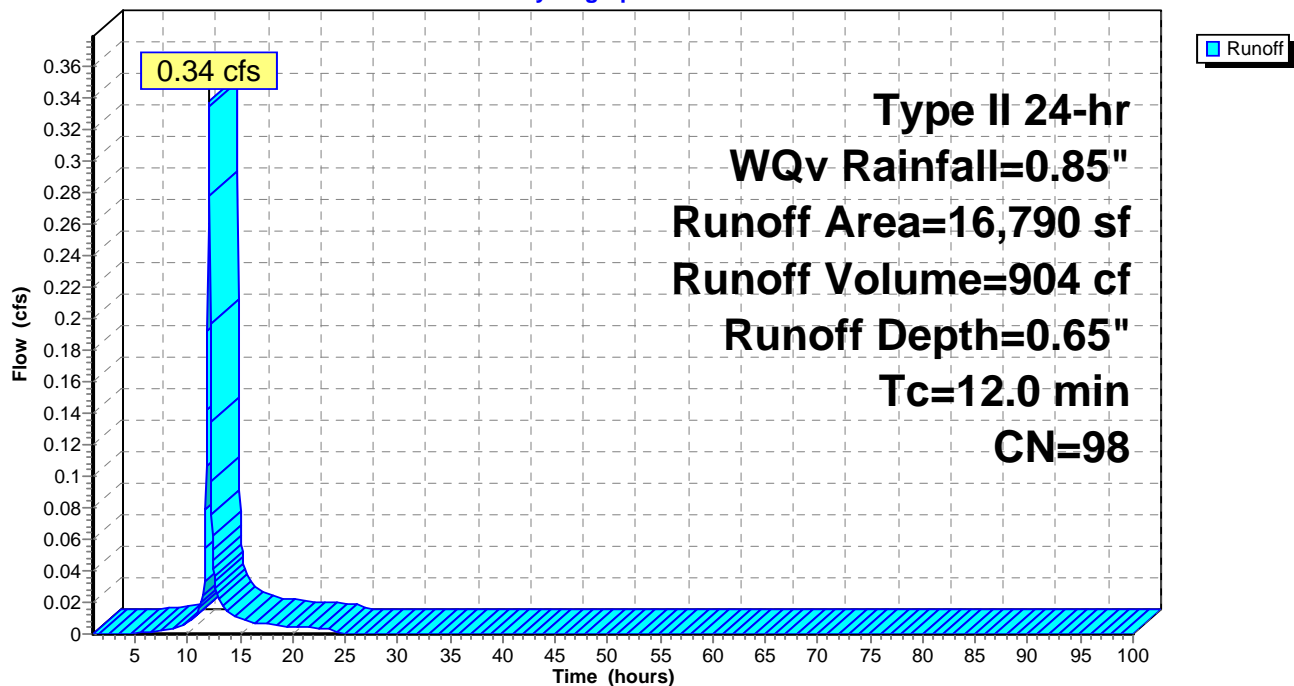
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
16,790	98	Paved parking, HSG D
16,790		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 15B: Area 15B**

Hydrograph



**Summary for Subcatchment 16: Area 16**

Runoff = 0.05 cfs @ 12.03 hrs, Volume= 146 cf, Depth= 0.65"

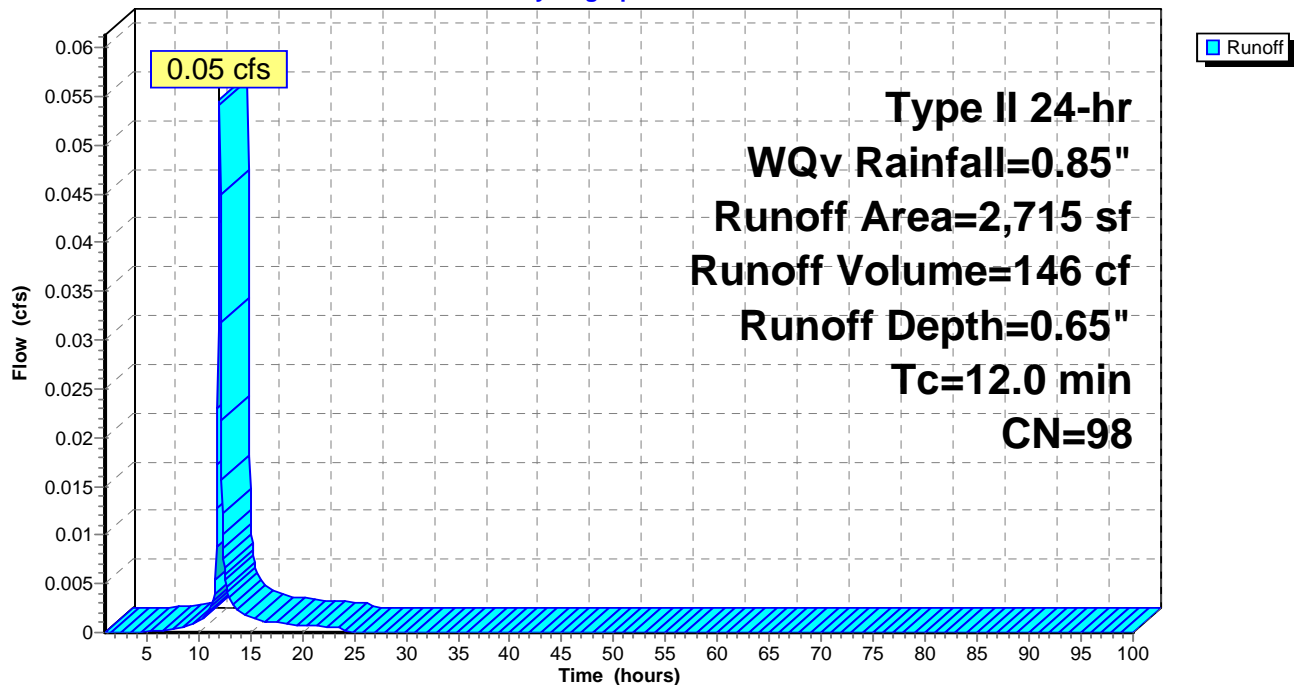
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
43	80	>75% Grass cover, Good, HSG D
2,672	98	Paved parking, HSG D
2,715	98	Weighted Average
43		1.58% Pervious Area
2,672		98.42% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 16: Area 16**

Hydrograph





**Summary for Pond 84": 84" TRUNK SEWER**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=502)

Inflow Area = 112,891 sf, 98.39% Impervious, Inflow Depth > 0.48" for WQv event  
 Inflow = 0.79 cfs @ 12.03 hrs, Volume= 4,507 cf  
 Outflow = 0.79 cfs @ 12.03 hrs, Volume= 4,523 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.79 cfs @ 12.03 hrs, Volume= 4,523 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 590.37' @ 12.03 hrs

Flood Elev= 647.22'

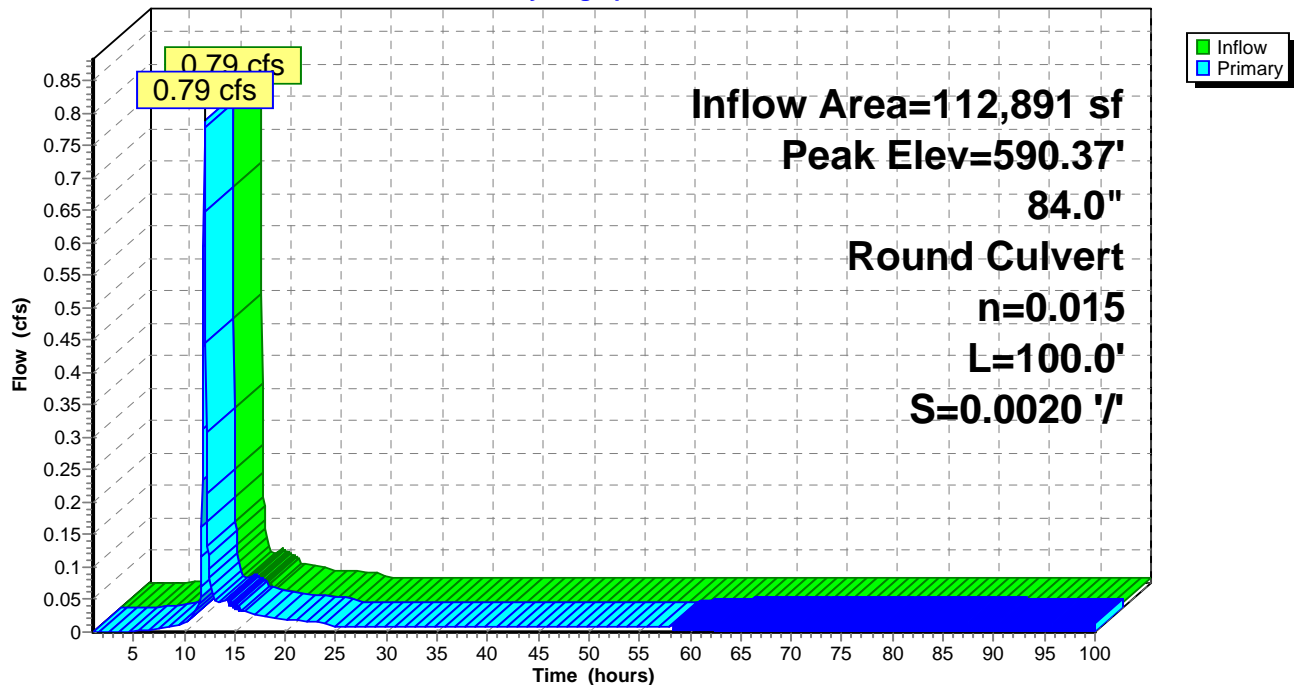
Device	Routing	Invert	Outlet Devices
#1	Primary	590.00'	<b>84.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 590.00' / 589.80' S= 0.0020 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 38.48 sf

**Primary OutFlow** Max=0.77 cfs @ 12.03 hrs HW=590.37' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 0.77 cfs @ 1.53 fps)

**Pond 84": 84" TRUNK SEWER**

Hydrograph



**Summary for Pond DI 868: DI #868**

[80] Warning: Exceeded Pond DS 6 by 0.29' @ 24.25 hrs (0.12 cfs 34,067 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth = 0.27" for WQv event  
 Inflow = 0.19 cfs @ 12.02 hrs, Volume= 515 cf  
 Outflow = 0.19 cfs @ 12.02 hrs, Volume= 516 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.19 cfs @ 12.02 hrs, Volume= 516 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

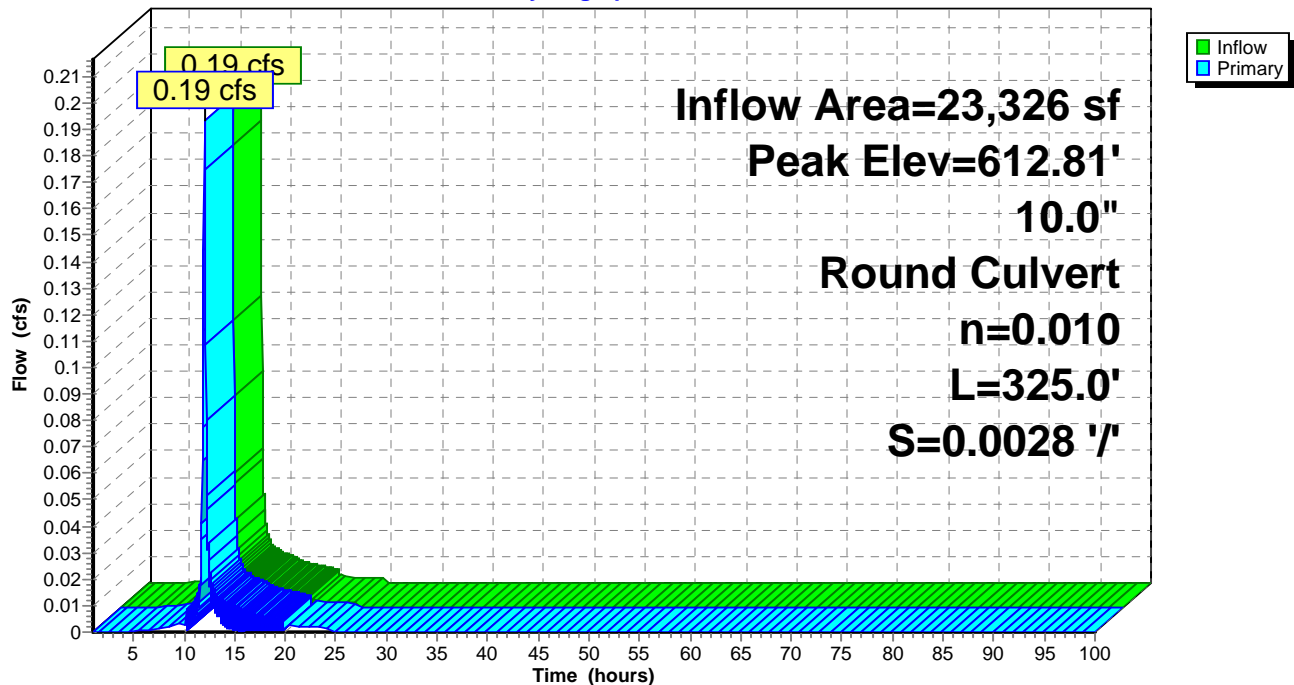
Peak Elev= 612.81' @ 12.02 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.19 cfs @ 12.02 hrs HW=612.81' TW=590.37' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 0.19 cfs @ 1.87 fps)

**Pond DI 868: DI #868****Hydrograph**

**Summary for Pond DS 10: Planter PB-8A**

Inflow Area = 2,841 sf, 96.16% Impervious, Inflow Depth = 0.57" for WQv event  
 Inflow = 0.05 cfs @ 12.04 hrs, Volume= 134 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.29' @ 24.70 hrs Surf.Area= 391 sf Storage= 134 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.43'	638 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.43	391	0.0	0	0
613.75	391	40.0	519	519
613.76	141	20.0	1	520
615.09	141	50.0	94	614
615.26	141	100.0	24	638

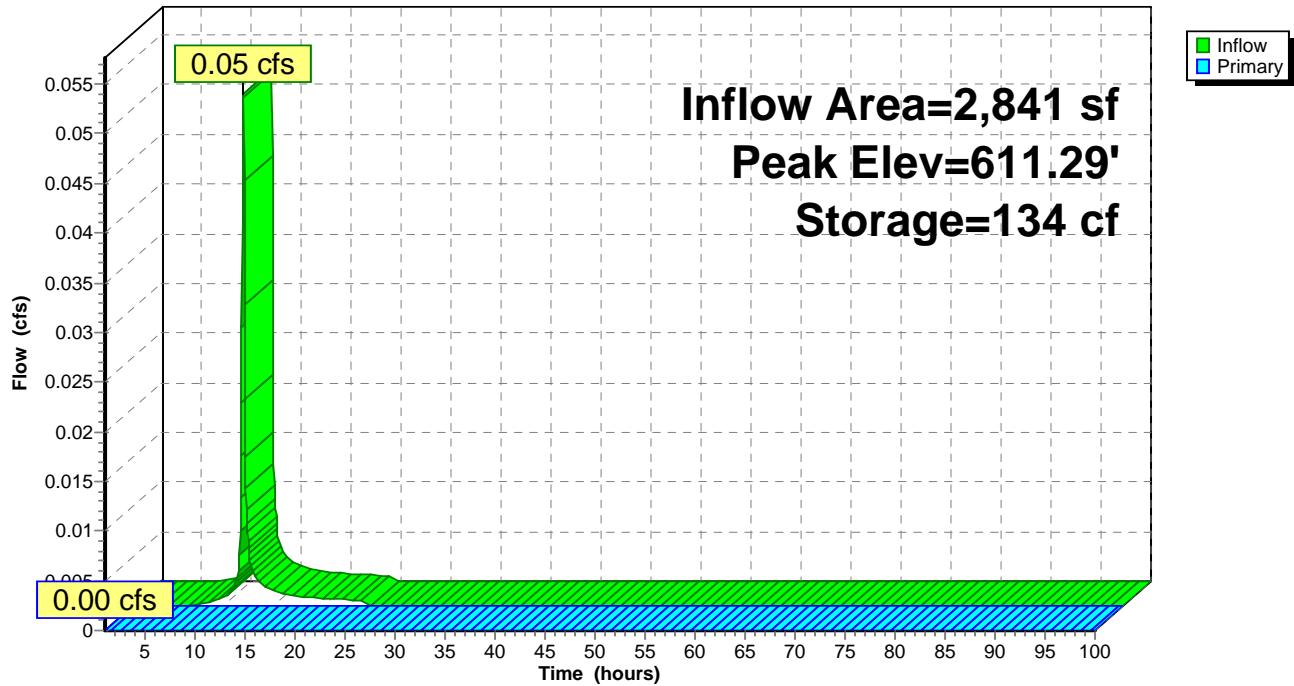
Device	Routing	Invert	Outlet Devices
#1	Primary	611.95'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.95' / 611.88' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.76'	<b>6.0" Round Culvert</b> L= 28.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.76' / 610.76' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.43'	<b>1.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.25'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.43' TW=612.27' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 10: Planter PB-8A

Hydrograph



**Summary for Pond DS 11: Planter PB-9A**

Inflow Area = 2,159 sf, 94.58% Impervious, Inflow Depth = 0.57" for WQv event  
 Inflow = 0.04 cfs @ 12.04 hrs, Volume= 102 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.77' @ 24.70 hrs Surf.Area= 391 sf Storage= 102 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.12'	664 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.12	391	0.0	0	0
613.61	391	40.0	546	546
613.62	141	20.0	1	546
614.95	141	50.0	94	640
615.12	141	100.0	24	664

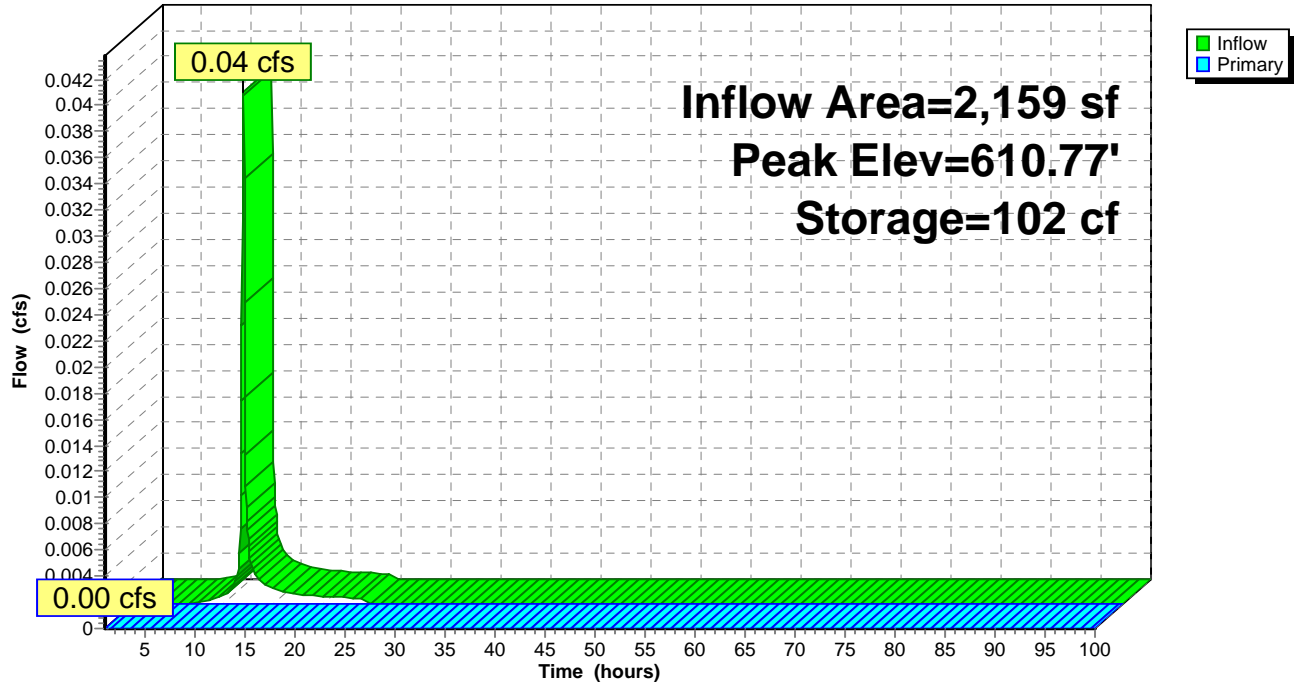
Device	Routing	Invert	Outlet Devices
#1	Primary	611.91'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.91' / 611.84' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.62'	<b>6.0" Round Culvert</b> L= 27.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.62' / 610.62' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.12'	<b>1.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.11'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.12' TW=612.27' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 11: Planter PB-9A

Hydrograph



**Summary for Pond DS 14: DS 14**

Inflow Area = 19,614 sf, 98.41% Impervious, Inflow Depth = 0.62" for WQv event  
 Inflow = 0.38 cfs @ 12.03 hrs, Volume= 1,015 cf  
 Outflow = 0.38 cfs @ 12.03 hrs, Volume= 1,015 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.24 cfs @ 12.03 hrs, Volume= 870 cf  
 Secondary = 0.14 cfs @ 12.03 hrs, Volume= 145 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.15' @ 12.03 hrs

Flood Elev= 647.22'

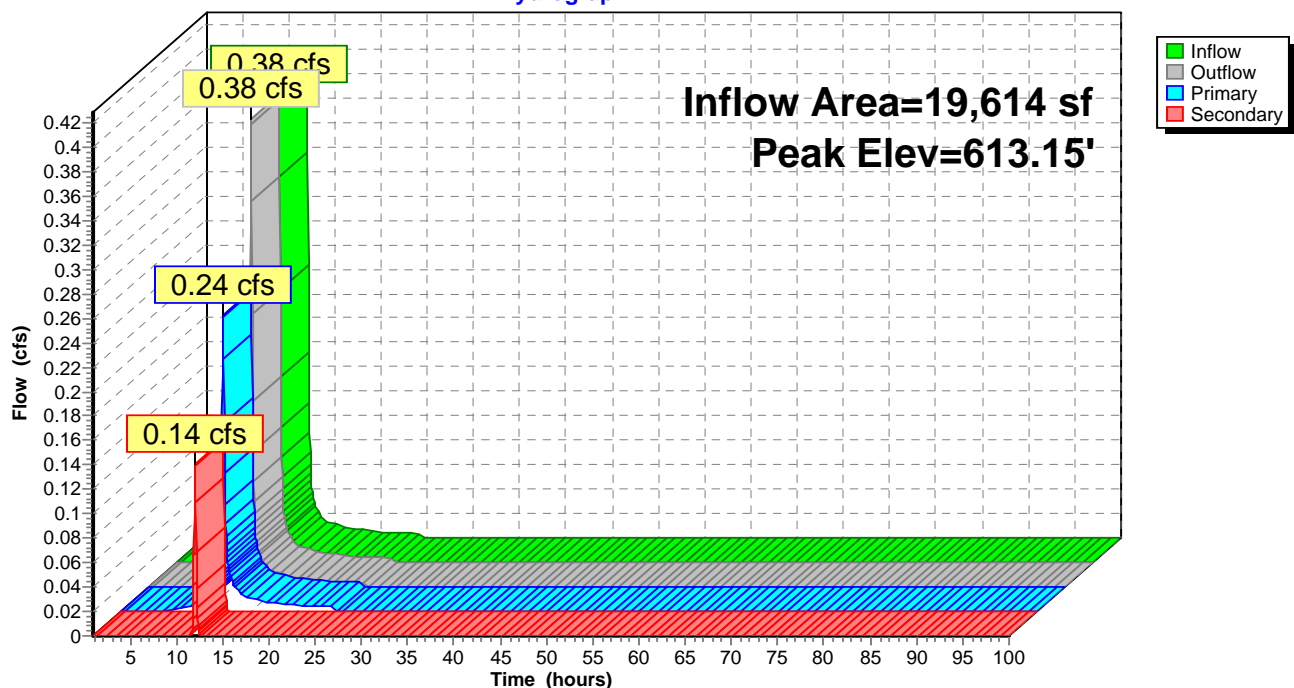
Device	Routing	Invert	Outlet Devices
#1	Primary	612.80'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.80' / 612.75' S= 0.0125 ' /' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	612.90'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.90' / 612.83' S= 0.0117 ' /' Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

**Primary OutFlow** Max=0.24 cfs @ 12.03 hrs HW=613.15' TW=610.75' (Dynamic Tailwater)

↑**1=Culvert** (Barrel Controls 0.24 cfs @ 2.29 fps)

**Secondary OutFlow** Max=0.14 cfs @ 12.03 hrs HW=613.15' TW=612.80' (Dynamic Tailwater)

↑**2=Culvert** (Barrel Controls 0.14 cfs @ 2.05 fps)

**Pond DS 14: DS 14****Hydrograph**

**Summary for Pond DS 15: Planter PB-4A**

Inflow Area = 19,614 sf, 98.41% Impervious, Inflow Depth = 0.53" for WQv event  
 Inflow = 0.24 cfs @ 12.03 hrs, Volume= 870 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 612.06' @ 24.70 hrs Surf.Area= 1,055 sf Storage= 870 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.00'	1,803 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.00	1,055	0.0	0	0
613.49	1,055	40.0	1,473	1,473
613.50	394	20.0	1	1,474
614.83	394	50.0	262	1,736
615.00	394	100.0	67	1,803

Device	Routing	Invert	Outlet Devices
#1	Primary	611.93'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.93' / 611.86' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.50'	<b>6.0" Round Culvert</b> L= 61.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.50' / 610.50' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.00'	<b>11.000 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.99'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

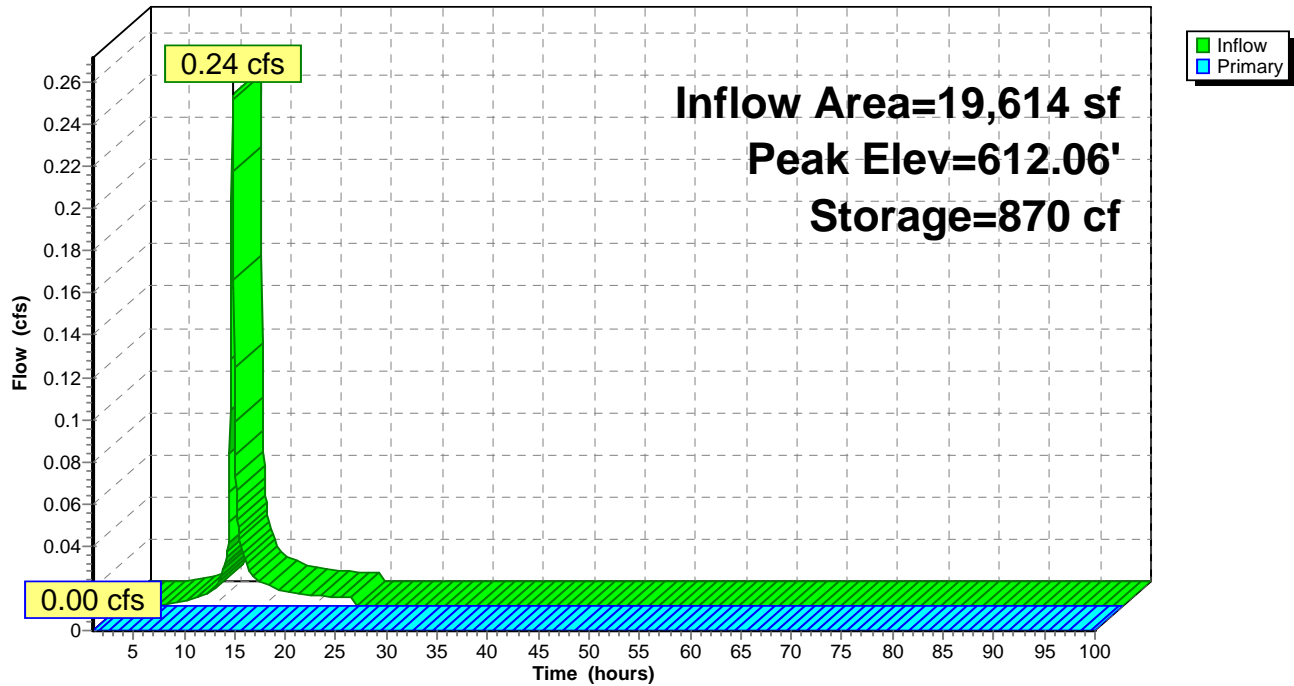
**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.00' TW=612.54' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.27 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)



## Pond DS 15: Planter PB-4A

Hydrograph



**Summary for Pond DS 2: Planter PB-1A**

Inflow Area = 5,276 sf, 95.77% Impervious, Inflow Depth = 0.57" for WQv event  
 Inflow = 0.10 cfs @ 12.04 hrs, Volume= 249 cf  
 Outflow = 0.00 cfs @ 22.09 hrs, Volume= 15 cf, Atten= 99%, Lag= 603.3 min  
 Primary = 0.00 cfs @ 22.09 hrs, Volume= 15 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 612.66' @ 22.09 hrs Surf.Area= 273 sf Storage= 236 cf

Plug-Flow detention time= 816.0 min calculated for 15 cf (6% of inflow)  
 Center-of-Mass det. time= 581.3 min ( 1,392.5 - 811.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.50'	610 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.50	273	0.0	0	0
613.99	273	40.0	381	381
614.00	273	20.0	1	382
615.33	273	50.0	182	563
615.50	273	100.0	46	610

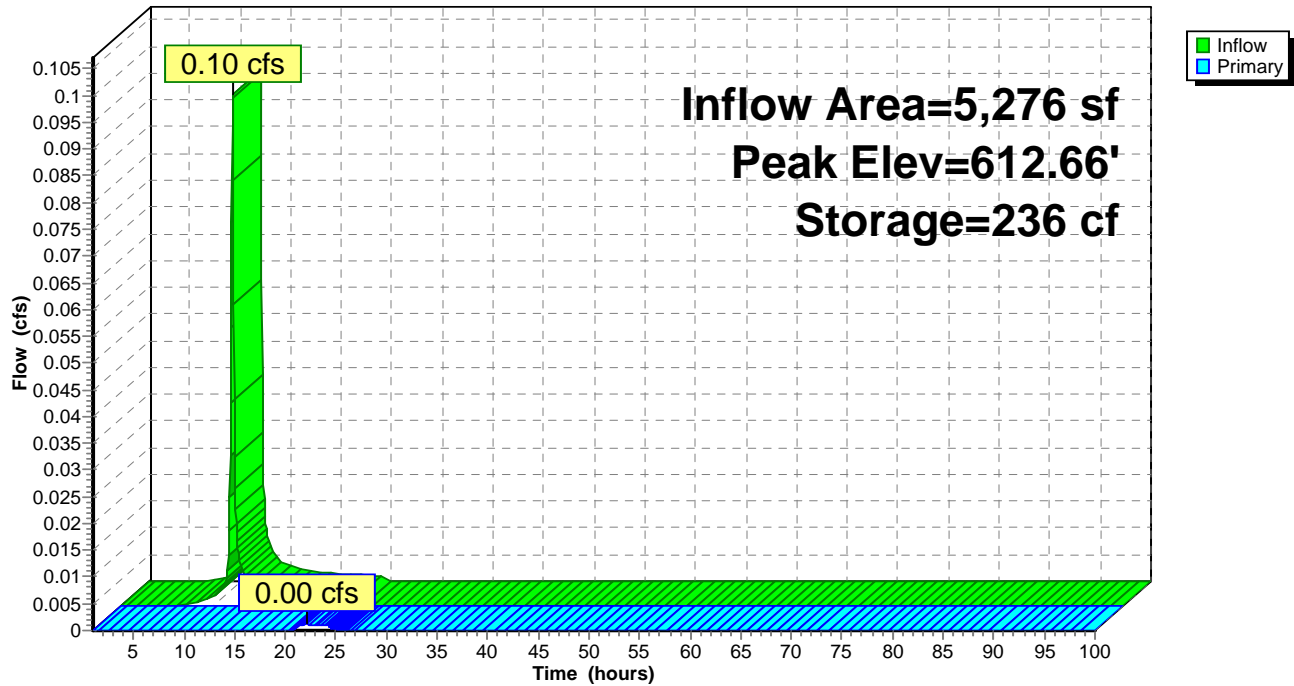
Device	Routing	Invert	Outlet Devices
#1	Primary	612.64'	<b>6.0" Round Culvert</b> L= 4.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.64' / 612.59' S= 0.0125 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.12'	<b>6.0" Round Culvert</b> L= 39.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.12' / 611.12' S= 0.0000 ' / ' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.50'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.49'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 22.09 hrs HW=612.66' TW=590.06' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.00 cfs @ 0.60 fps)  
 2=Culvert (Passes 0.00 cfs of 0.11 cfs potential flow)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 2: Planter PB-1A

Hydrograph



**Summary for Pond DS 28: DS 28**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=250)

Inflow Area = 9,492 sf, 98.75% Impervious, Inflow Depth = 0.51" for WQv event  
 Inflow = 0.08 cfs @ 12.03 hrs, Volume= 401 cf  
 Outflow = 0.08 cfs @ 12.03 hrs, Volume= 403 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.08 cfs @ 12.03 hrs, Volume= 403 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

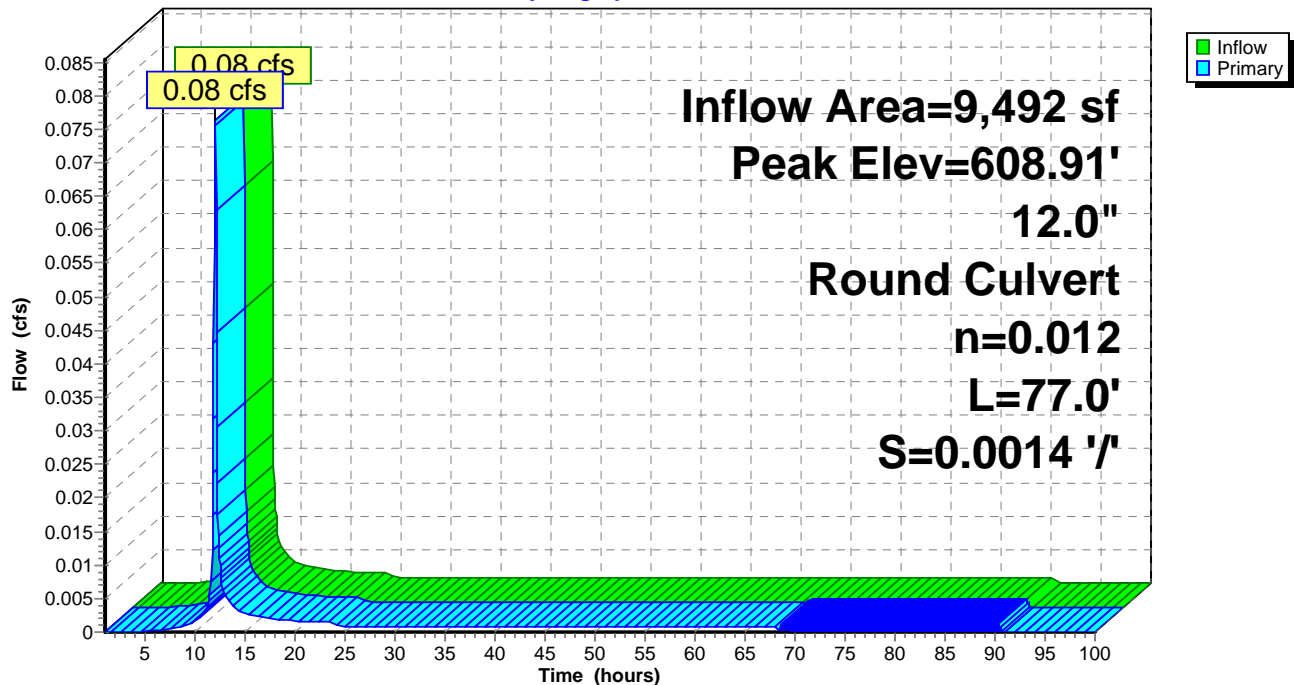
Peak Elev= 608.91' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.07 cfs @ 12.03 hrs HW=608.91' TW=590.37' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.07 cfs @ 1.04 fps)

**Pond DS 28: DS 28****Hydrograph**

**Summary for Pond DS 29: Planter PB-1B**

Inflow Area = 5,742 sf, 97.93% Impervious, Inflow Depth = 0.53" for WQv event  
 Inflow = 0.06 cfs @ 12.03 hrs, Volume= 252 cf  
 Outflow = 0.00 cfs @ 12.00 hrs, Volume= 199 cf, Atten= 99%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 12.00 hrs, Volume= 199 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 613.16' @ 24.17 hrs Surf.Area= 101 sf Storage= 169 cf

Plug-Flow detention time= 2,238.2 min calculated for 199 cf (79% of inflow)  
 Center-of-Mass det. time= 1,853.7 min ( 3,078.6 - 1,225.0 )

Volume	Invert	Avail.Storage	Storage Description
#1	609.10'	225 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
609.10	101	0.0	0	0
612.60	101	40.0	141	141
612.61	101	20.0	0	142
613.93	101	50.0	67	208
614.10	101	100.0	17	225

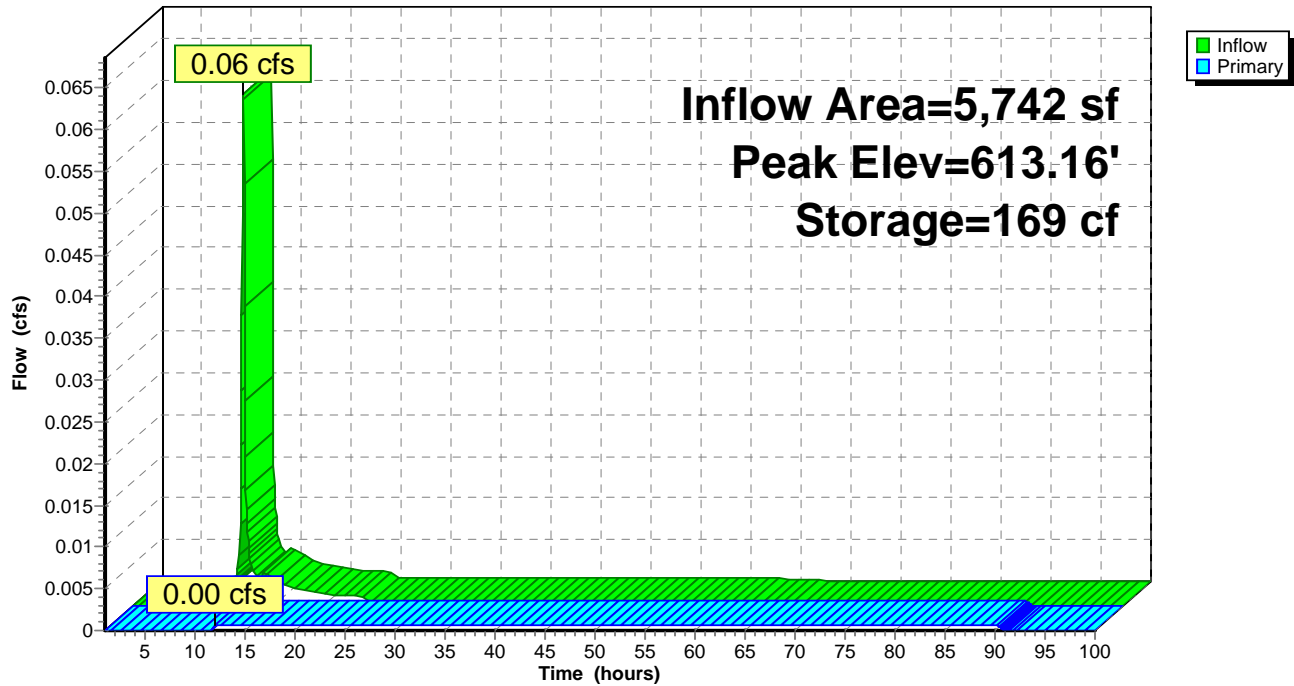
Device	Routing	Invert	Outlet Devices
#1	Primary	610.41'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.41' / 610.35' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.75'	<b>6.0" Round Culvert</b> L= 50.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 609.75' / 609.75' S= 0.0000 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	609.10'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.00'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 12.00 hrs HW=610.52' TW=608.90' (Dynamic Tailwater)

1=Culvert (Passes 0.00 cfs of 0.03 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 0.23 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 29: Planter PB-1B

Hydrograph



### Summary for Pond DS 3: DS 3

Inflow Area = 34,149 sf, 98.47% Impervious, Inflow Depth = 0.64" for WQv event  
 Inflow = 0.62 cfs @ 12.06 hrs, Volume= 1,813 cf  
 Outflow = 0.62 cfs @ 12.06 hrs, Volume= 1,813 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.62 cfs @ 12.06 hrs, Volume= 1,576 cf  
 Secondary = 0.02 cfs @ 14.05 hrs, Volume= 237 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 613.69' @ 14.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.60'	<b>6.0" Round Culvert</b> L= 4.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.60' / 612.55' S= 0.0125 ' / Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Secondary	613.60'	<b>6.0" Round Culvert</b> L= 6.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 613.60' / 613.55' S= 0.0083 ' / Cc= 0.900 n= 0.012, Flow Area= 0.20 sf

**Primary OutFlow** Max=0.62 cfs @ 12.06 hrs HW=613.31' TW=612.13' (Dynamic Tailwater)

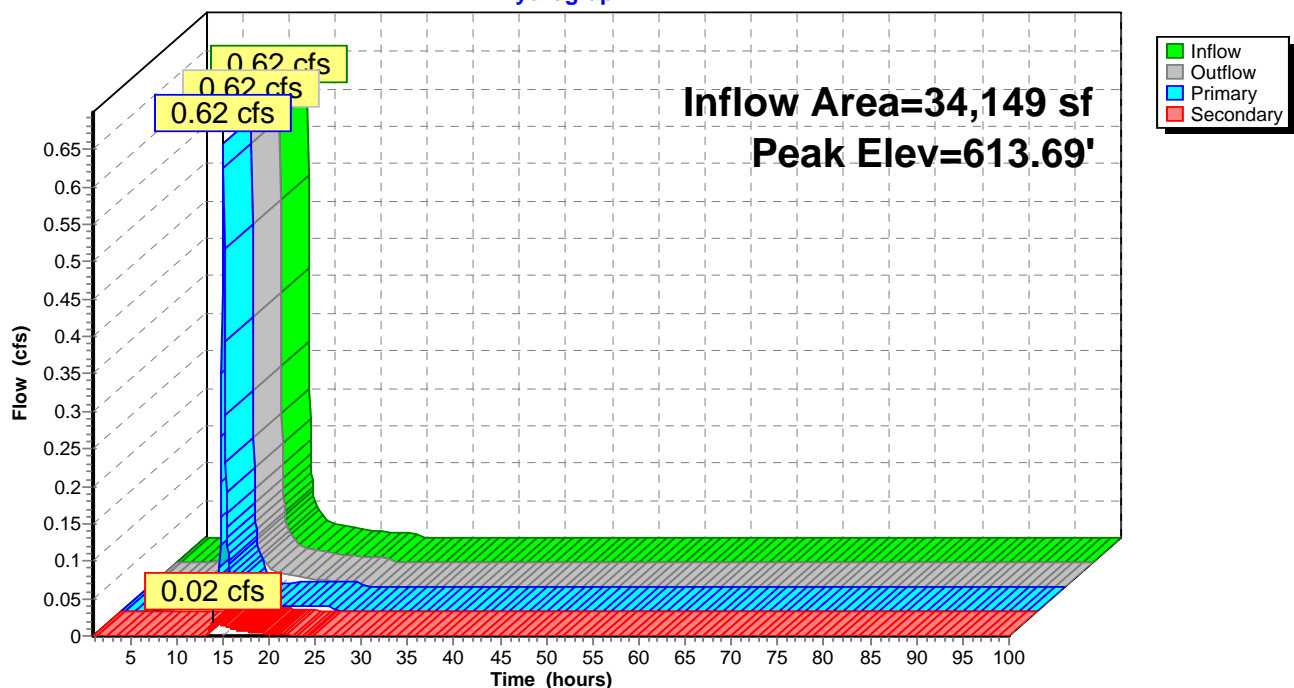
↑**1=Culvert** (Barrel Controls 0.62 cfs @ 3.14 fps)

**Secondary OutFlow** Max=0.02 cfs @ 14.05 hrs HW=613.69' TW=590.10' (Dynamic Tailwater)

↑**2=Culvert** (Barrel Controls 0.02 cfs @ 1.20 fps)

### Pond DS 3: DS 3

Hydrograph



**Summary for Pond DS 30: Planter PB-2B**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=24)

Inflow Area = 2,715 sf, 98.42% Impervious, Inflow Depth = 0.65" for WQv event  
 Inflow = 0.05 cfs @ 12.03 hrs, Volume= 146 cf  
 Outflow = 0.00 cfs @ 13.96 hrs, Volume= 89 cf, Atten= 95%, Lag= 115.7 min  
 Primary = 0.00 cfs @ 13.96 hrs, Volume= 89 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 613.92' @ 13.95 hrs Surf.Area= 49 sf Storage= 109 cf

Plug-Flow detention time= 1,322.7 min calculated for 89 cf (61% of inflow)  
 Center-of-Mass det. time= 1,219.1 min ( 2,014.8 - 795.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	608.93'	109 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.93	49	0.0	0	0
612.43	49	40.0	69	69
612.44	49	20.0	0	69
613.76	49	50.0	32	101
613.93	49	100.0	8	109

Device	Routing	Invert	Outlet Devices
#1	Primary	611.87'	<b>6.0" Round Culvert</b> L= 59.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.87' / 611.20' S= 0.0114 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.43'	<b>6.0" Round Culvert</b> L= 7.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.43' / 609.43' S= 0.0000 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.93'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.92'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

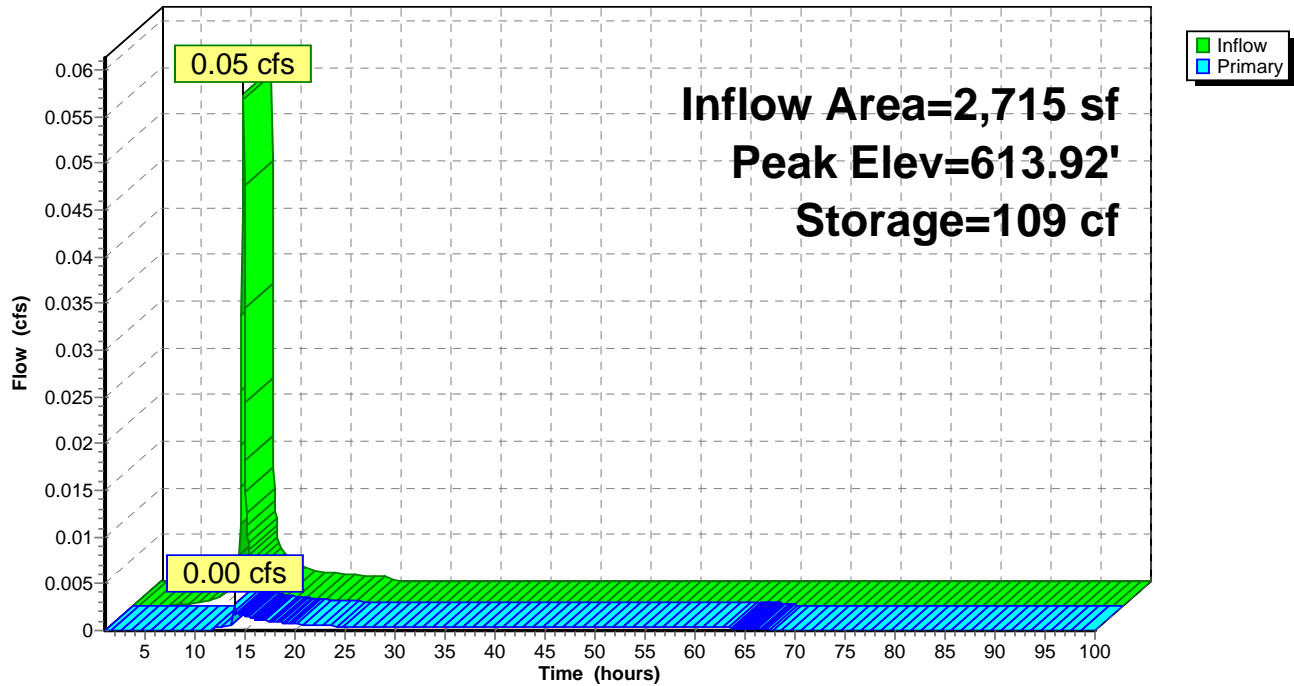
**Primary OutFlow** Max=0.00 cfs @ 13.96 hrs HW=613.92' TW=612.12' (Dynamic Tailwater)

1=Culvert (Passes 0.00 cfs of 1.02 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.27 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.00 cfs @ 0.14 fps)



## Pond DS 30: Planter PB-2B

Hydrograph



**Summary for Pond DS 4: Planter PB-2A**

[80] Warning: Exceeded Pond DS 3 by 0.98' @ 24.85 hrs (0.81 cfs 15,212 cf)

Inflow Area = 34,149 sf, 98.47% Impervious, Inflow Depth = 0.55" for WQv event  
 Inflow = 0.62 cfs @ 12.06 hrs, Volume= 1,576 cf  
 Outflow = 0.01 cfs @ 12.20 hrs, Volume= 705 cf, Atten= 99%, Lag= 8.4 min  
 Primary = 0.01 cfs @ 12.20 hrs, Volume= 2,173 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 613.69' @ 14.05 hrs Surf.Area= 990 sf Storage= 1,306 cf

Plug-Flow detention time= 910.8 min calculated for 705 cf (45% of inflow)  
 Center-of-Mass det. time= 812.0 min ( 1,585.1 - 773.1 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.39'	1,715 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.39	990	0.0	0	0
613.89	990	40.0	1,386	1,386
613.90	395	20.0	1	1,387
615.22	395	50.0	261	1,648
615.39	395	100.0	67	1,715

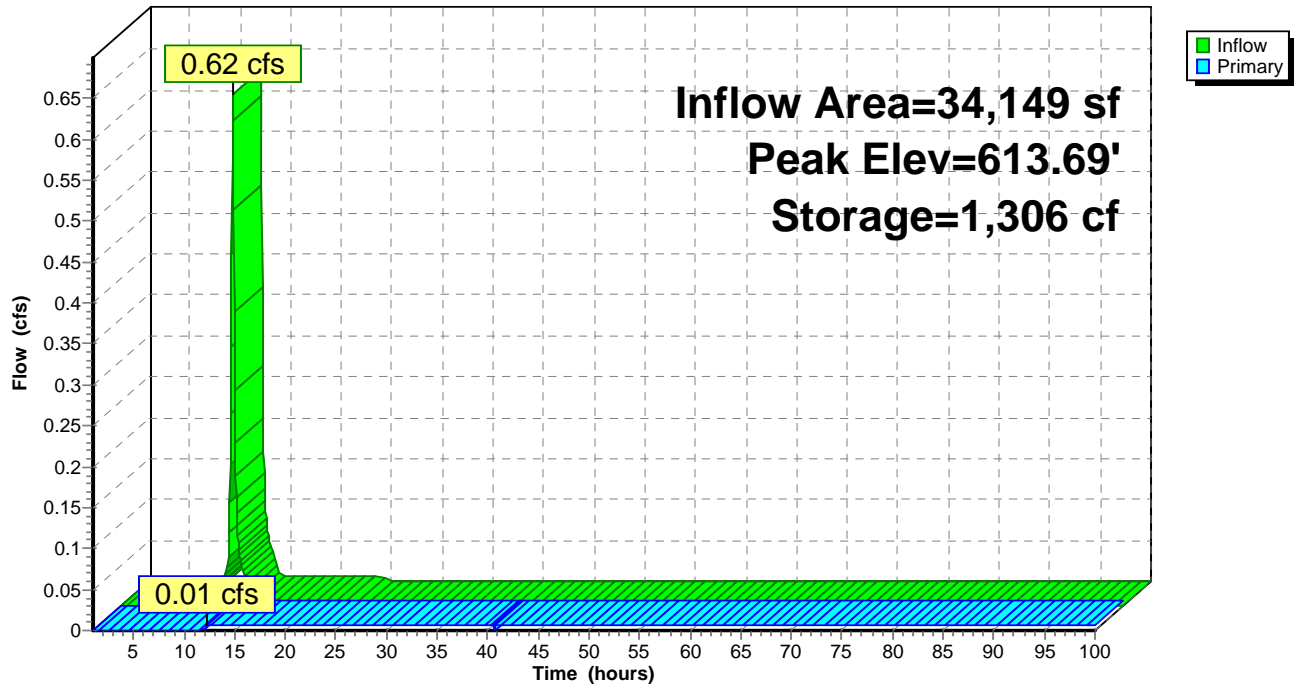
Device	Routing	Invert	Outlet Devices
#1	Primary	612.48'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.48' / 612.41' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.89'	<b>6.0" Round Culvert</b> L= 60.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.89' / 610.89' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.39'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.37'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.01 cfs @ 12.20 hrs HW=612.78' TW=612.70' (Dynamic Tailwater)

1=Culvert (Passes 0.01 cfs of 0.14 cfs potential flow)  
 2=Culvert (Passes 0.01 cfs of 0.18 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.01 cfs)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 4: Planter PB-2A

Hydrograph



**Summary for Pond DS 5: Planter PB-3A**

Inflow Area = 2,103 sf, 92.44% Impervious, Inflow Depth = 0.57" for WQv event  
 Inflow = 0.04 cfs @ 12.04 hrs, Volume= 99 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.46' @ 24.70 hrs Surf.Area= 195 sf Storage= 99 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.19'	435 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.19	195	0.0	0	0
613.68	195	40.0	272	272
613.69	195	20.0	0	273
615.02	195	50.0	130	402
615.19	195	100.0	33	435

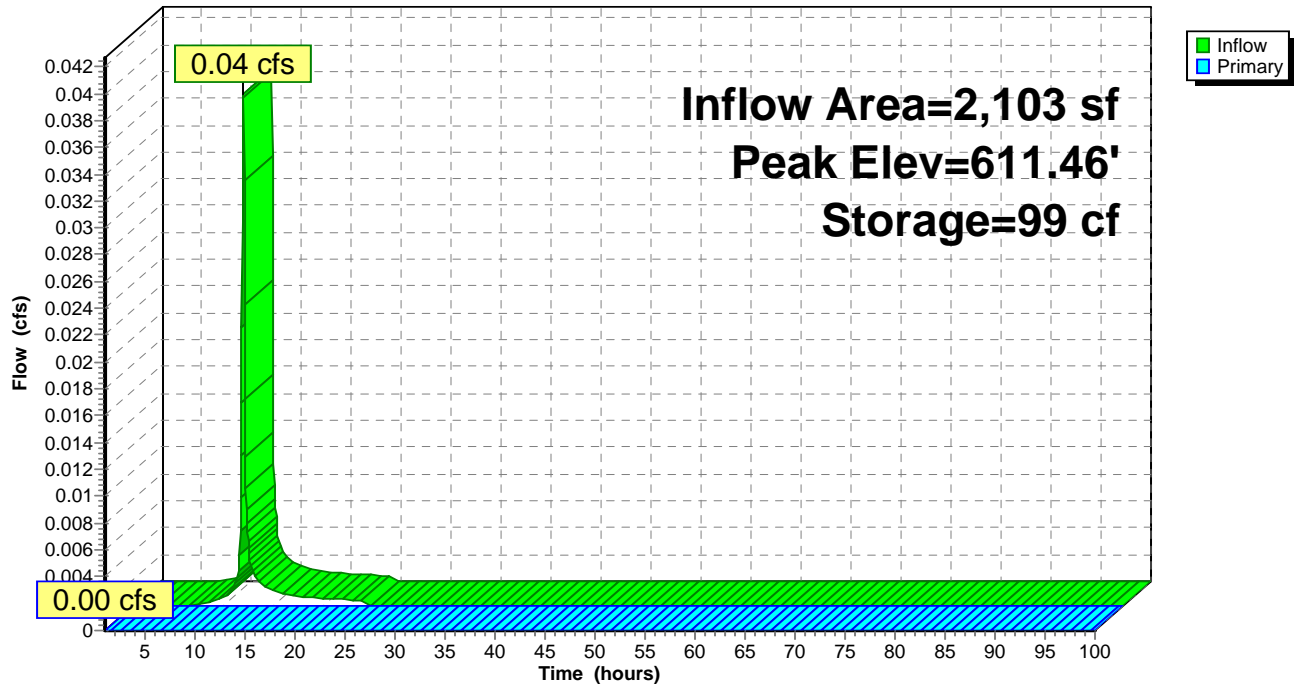
Device	Routing	Invert	Outlet Devices
#1	Primary	612.37'	<b>6.0" Round Culvert</b> L= 5.5' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.37' / 612.30' S= 0.0127 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.61'	<b>6.0" Round Culvert</b> L= 28.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.61' / 610.61' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.19'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.18'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.19' TW=612.54' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 5: Planter PB-3A

Hydrograph



### Summary for Pond DS 6: DS 6

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=131)

[80] Warning: Exceeded Pond DS 10 by 2.17' @ 11.90 hrs (0.01 cfs 3,226 cf)

[80] Warning: Exceeded Pond DS 11 by 2.54' @ 12.00 hrs (0.01 cfs 3,226 cf)

[80] Warning: Exceeded Pond DS 9 by 2.08' @ 11.90 hrs (0.01 cfs 472 cf)

Inflow Area = 23,326 sf, 97.95% Impervious, Inflow Depth = 0.27" for WQv event  
 Inflow = 0.19 cfs @ 12.03 hrs, Volume= 516 cf  
 Outflow = 0.19 cfs @ 12.02 hrs, Volume= 515 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.19 cfs @ 12.02 hrs, Volume= 515 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.86' @ 12.02 hrs

Flood Elev= 647.22'

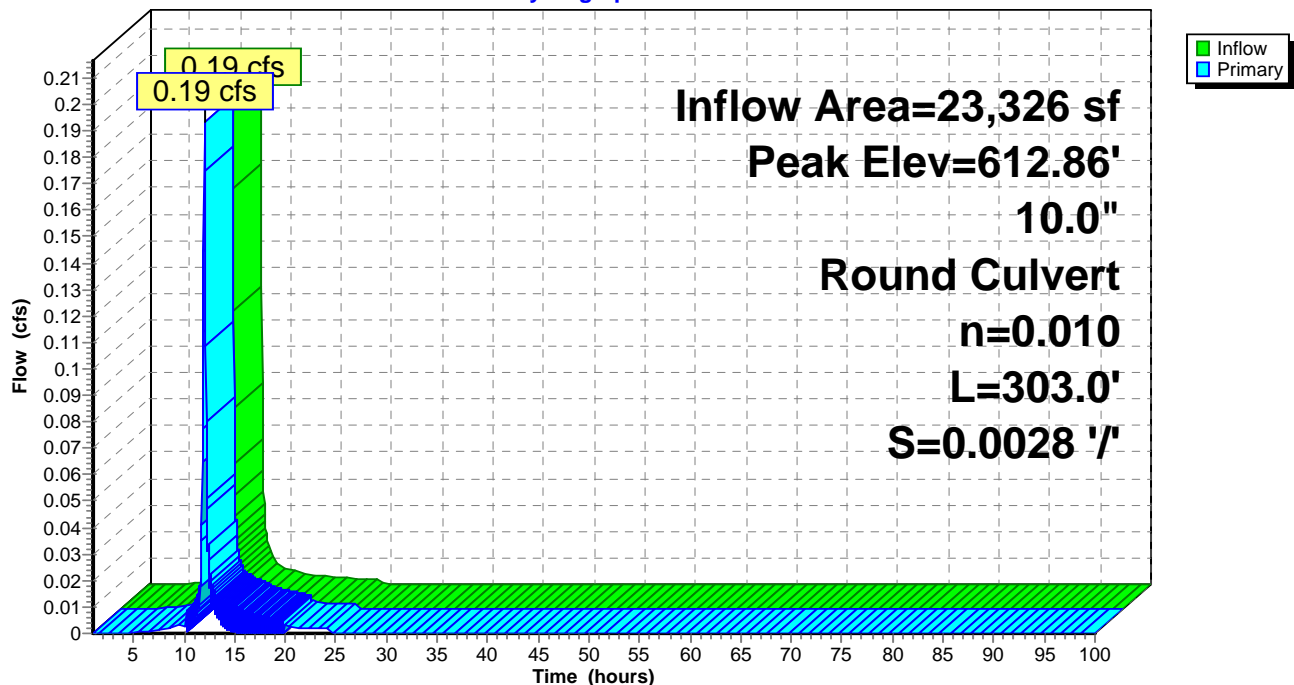
Device	Routing	Invert	Outlet Devices
#1	Primary	612.27'	<b>10.0" Round Culvert</b> L= 303.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.27' / 611.42' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.19 cfs @ 12.02 hrs HW=612.86' TW=612.81' (Dynamic Tailwater)

↑**1=Culvert** (Outlet Controls 0.19 cfs @ 0.64 fps)

### Pond DS 6: DS 6

Hydrograph



**Summary for Pond DS 7: Planter PB-5A**

Inflow Area = 3,711 sf, 98.14% Impervious, Inflow Depth = 0.65" for WQv event  
 Inflow = 0.07 cfs @ 12.03 hrs, Volume= 200 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 612.93' @ 24.70 hrs Surf.Area= 234 sf Storage= 200 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.79'	397 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.79	234	0.0	0	0
614.28	234	40.0	327	327
614.29	84	20.0	0	327
615.62	84	50.0	56	383
615.79	84	100.0	14	397

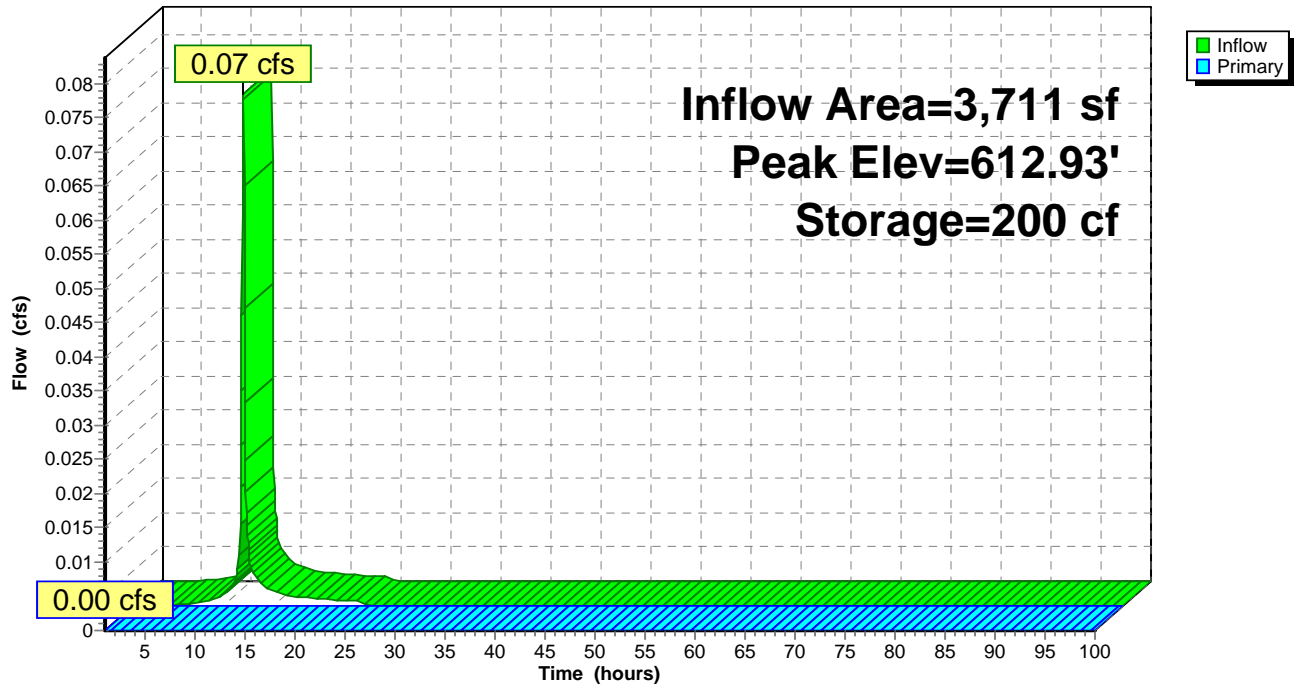
Device	Routing	Invert	Outlet Devices
#1	Primary	613.04'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.29'	<b>6.0" Round Culvert</b> L= 15.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.29' / 611.29' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.79'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.60'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.79' TW=612.27' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 7: Planter PB-5A

Hydrograph





**Summary for Pond DS 9: Planter PB-7A**

Inflow Area = 3,275 sf, 96.52% Impervious, Inflow Depth = 0.57" for WQv event  
 Inflow = 0.06 cfs @ 12.04 hrs, Volume= 154 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.48' @ 24.70 hrs Surf.Area= 391 sf Storage= 154 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.49'	665 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.49	391	0.0	0	0
613.99	391	40.0	547	547
614.00	141	20.0	1	548
615.32	141	50.0	93	641
615.49	141	100.0	24	665

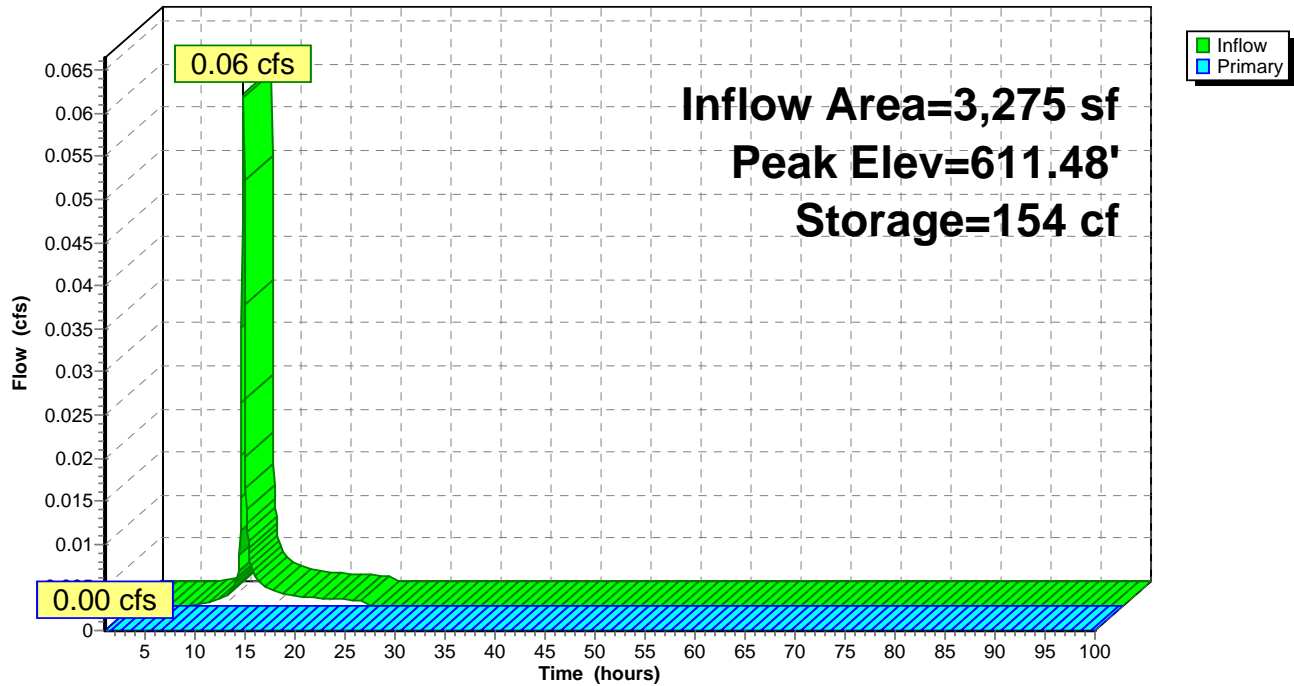
Device	Routing	Invert	Outlet Devices
#1	Primary	612.30'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.30' / 612.23' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.99'	<b>6.0" Round Culvert</b> L= 28.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.99' / 610.99' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.49'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.48'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.49' TW=612.27' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.01 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 9: Planter PB-7A

Hydrograph



**Summary for Pond DS-1: DS 1**

[80] Warning: Exceeded Pond DS 15 by 2.54' @ 4.85 hrs (0.27 cfs 95,741 cf)

[80] Warning: Exceeded Pond DS 4 by 2.15' @ 4.50 hrs (0.01 cfs 1,745 cf)

[80] Warning: Exceeded Pond DS 5 by 2.36' @ 6.55 hrs (0.00 cfs 483 cf)

Inflow Area = 58,007 sf, 98.29% Impervious, Inflow Depth > 0.50" for WQv event  
 Inflow = 0.18 cfs @ 12.03 hrs, Volume= 2,433 cf  
 Outflow = 0.18 cfs @ 12.03 hrs, Volume= 2,433 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.18 cfs @ 12.03 hrs, Volume= 2,433 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

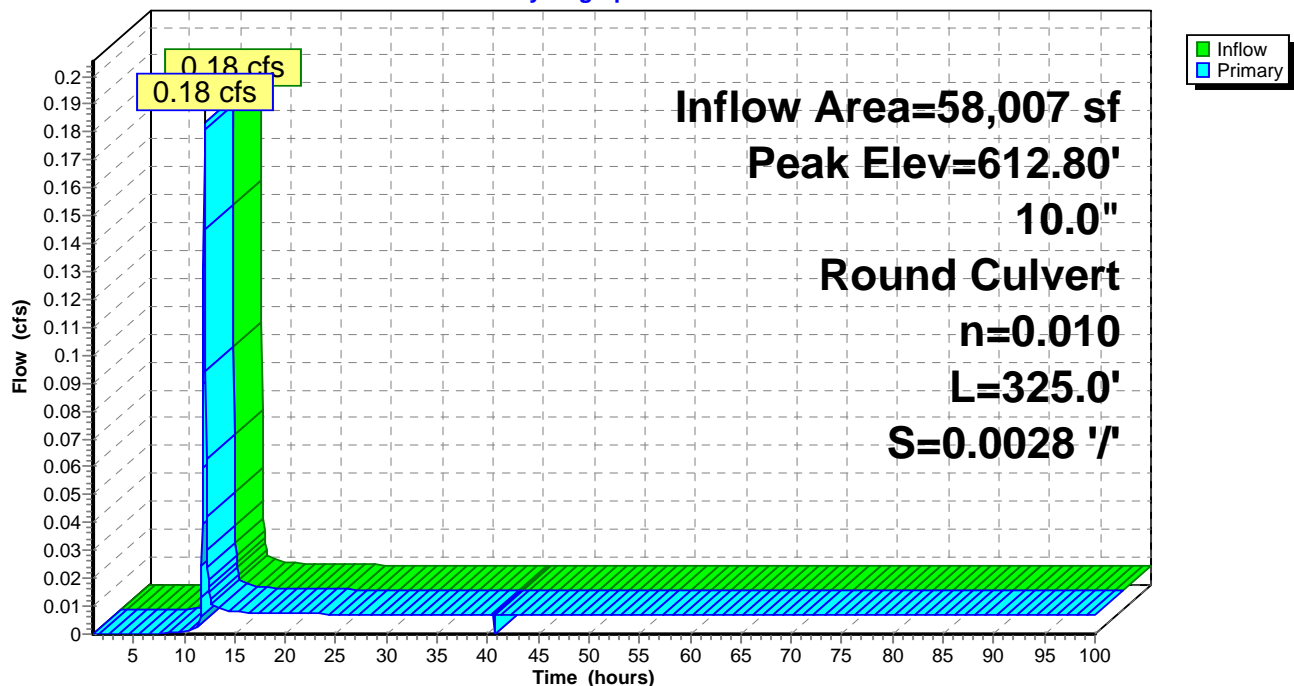
Peak Elev= 612.80' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.54'	<b>10.0" Round Culvert</b> L= 325.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.54' / 611.63' S= 0.0028 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.18 cfs @ 12.03 hrs HW=612.80' TW=590.37' (Dynamic Tailwater)

↑1=Culvert (Barrel Controls 0.18 cfs @ 1.84 fps)

**Pond DS-1: DS 1****Hydrograph**

**Summary for Pond DS8: Planter PB-6A**

Inflow Area = 1,765 sf, 96.09% Impervious, Inflow Depth = 0.57" for WQv event  
 Inflow = 0.03 cfs @ 12.04 hrs, Volume= 83 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.52' @ 24.70 hrs Surf.Area= 235 sf Storage= 83 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.63'	399 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.63	235	0.0	0	0
614.13	235	40.0	329	329
614.14	84	20.0	0	329
615.46	84	50.0	55	385
615.63	84	100.0	14	399

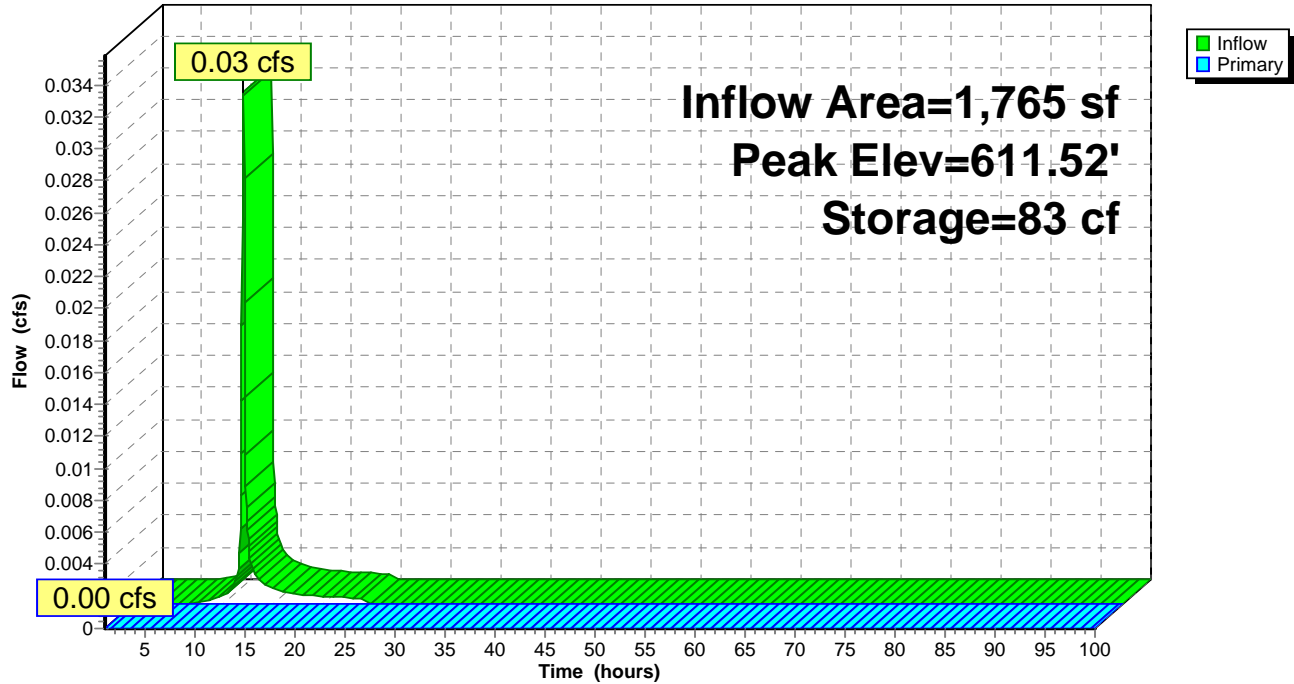
Device	Routing	Invert	Outlet Devices
#1	Primary	613.04'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 613.04' / 612.97' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	611.13'	<b>6.0" Round Culvert</b> L= 14.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 611.13' / 611.13' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.63'	<b>0.900 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.62'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.63' TW=612.27' (Dynamic Tailwater)

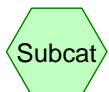
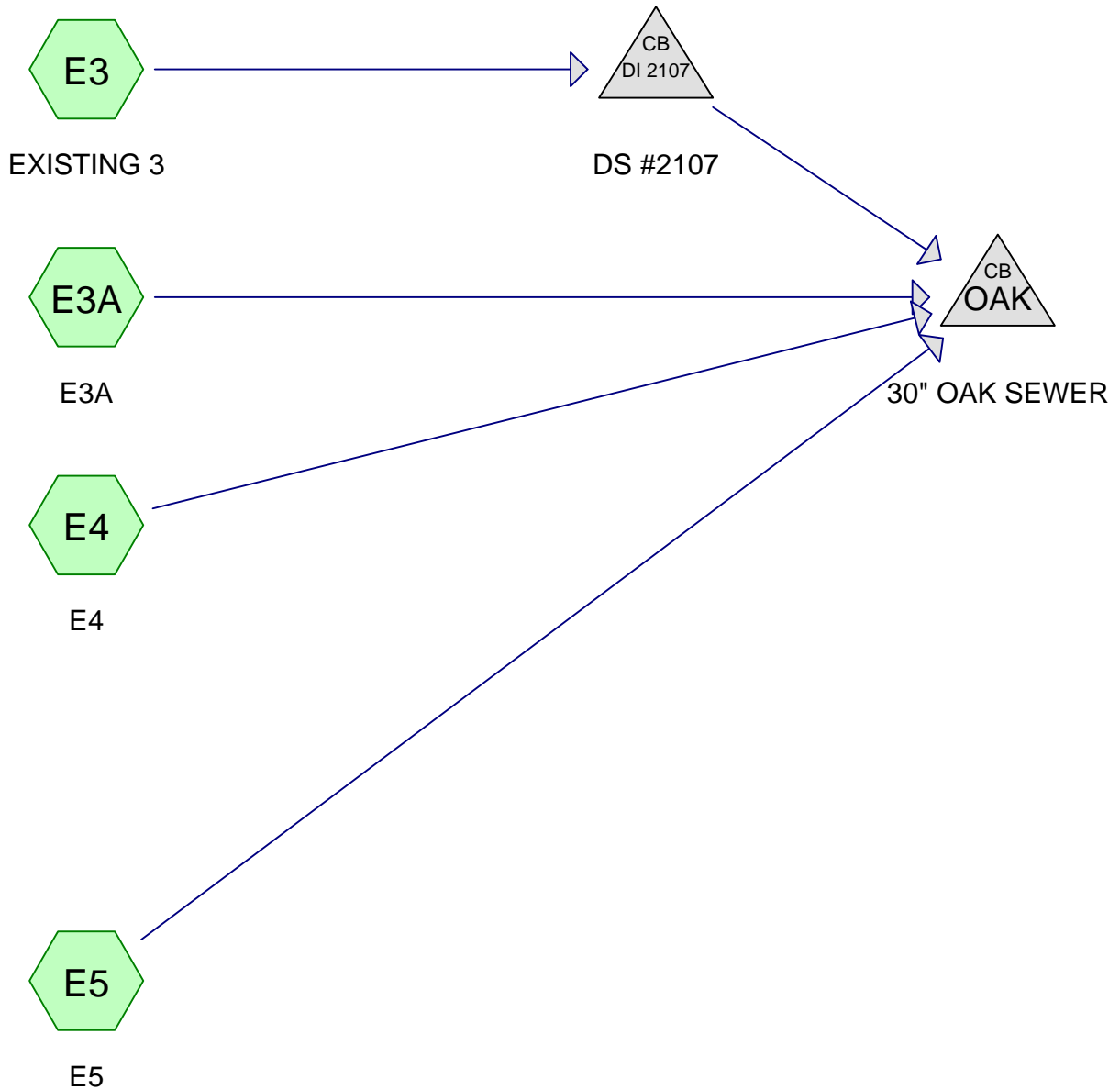
1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS8: Planter PB-6A

Hydrograph



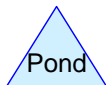
EXISTING GENESEE  
ST TO OAK SEWER



Subcat



Reach



Pond



Link

**Routing Diagram for Genesee St Final**

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## Genesee St Final

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### Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
187	80	>75% Grass cover, Good, HSG D (E4, E5)
45,329	98	Paved parking, HSG D (E3, E3A, E4, E5)
<b>45,516</b>	<b>98</b>	<b>TOTAL AREA</b>

## Genesee St Final

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### Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
45,516	HSG D	E3, E3A, E4, E5
0	Other	
<b>45,516</b>		<b>TOTAL AREA</b>



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**Ground Covers (selected nodes)**

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
0	0	0	187	0	187	>75% Grass cover, Good	
0	0	0	45,329	0	45,329	Paved parking	
<b>0</b>	<b>0</b>	<b>0</b>	<b>45,516</b>	<b>0</b>	<b>45,516</b>	<b>TOTAL AREA</b>	

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**Pipe Listing (selected nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	DI 2107	608.71	608.60	100.0	0.0011	0.011	15.0	0.0	0.0
2	OAK	600.50	600.00	100.0	0.0050	0.015	30.0	0.0	0.0

**Genesee St Final**

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Type II 24-hr 2 YR Rainfall=2.25"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E3: EXISTING 3**Runoff Area=19,424 sf 100.00% Impervious Runoff Depth=2.02"  
Tc=12.0 min CN=98 Runoff=1.15 cfs 3,274 cf**Subcatchment E3A: E3A**Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=2.02"  
Tc=12.0 min CN=98 Runoff=0.50 cfs 1,440 cf**Subcatchment E4: E4**Runoff Area=9,639 sf 99.01% Impervious Runoff Depth=2.02"  
Tc=12.0 min CN=98 Runoff=0.57 cfs 1,624 cf**Subcatchment E5: E5**Runoff Area=7,907 sf 98.84% Impervious Runoff Depth=2.02"  
Tc=12.0 min CN=98 Runoff=0.47 cfs 1,333 cf**Pond DI 2107: DS #2107**Peak Elev=609.42' Inflow=1.15 cfs 3,274 cf  
15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=1.15 cfs 3,274 cf**Pond OAK: 30" OAK SEWER**Peak Elev=601.26' Inflow=2.69 cfs 7,671 cf  
30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=2.69 cfs 7,671 cf**Total Runoff Area = 45,516 sf Runoff Volume = 7,671 cf Average Runoff Depth = 2.02"**  
**0.41% Pervious = 187 sf 99.59% Impervious = 45,329 sf**

**Summary for Subcatchment E3: EXISTING 3**

Runoff = 1.15 cfs @ 12.03 hrs, Volume= 3,274 cf, Depth= 2.02"

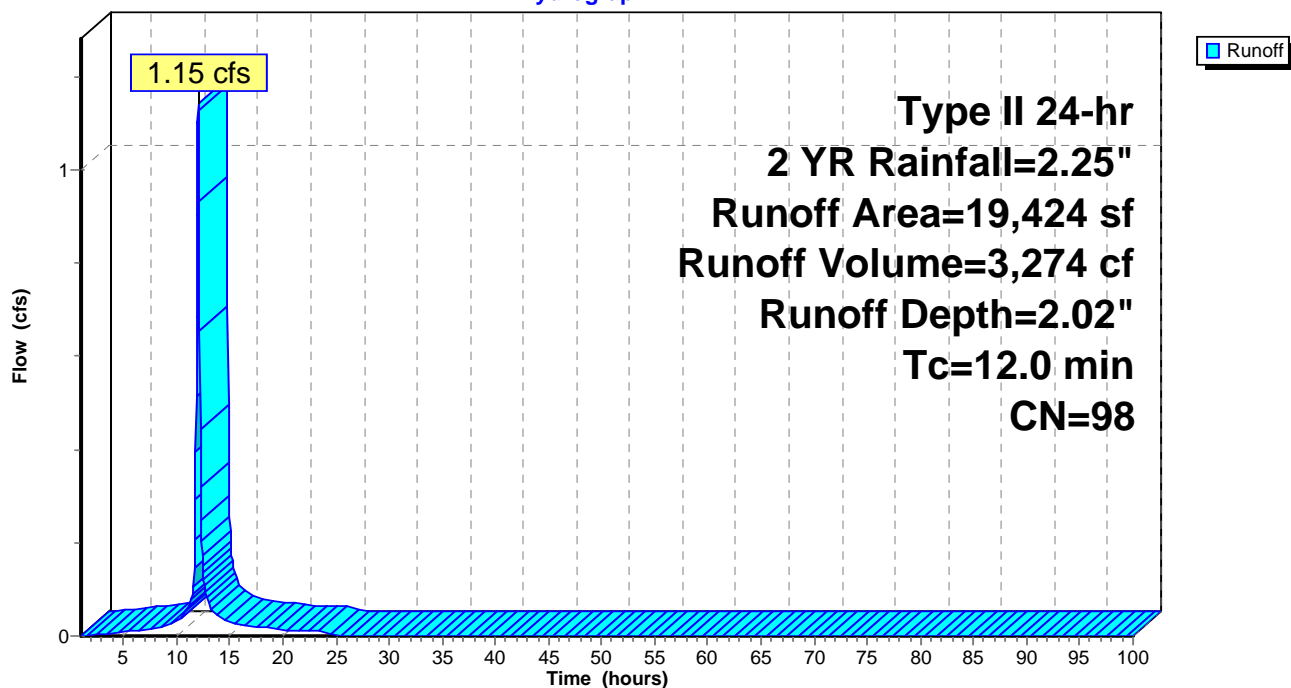
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
19,424	98	Paved parking, HSG D
19,424		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E3: EXISTING 3**

Hydrograph



**Summary for Subcatchment E3A: E3A**

Runoff = 0.50 cfs @ 12.03 hrs, Volume= 1,440 cf, Depth= 2.02"

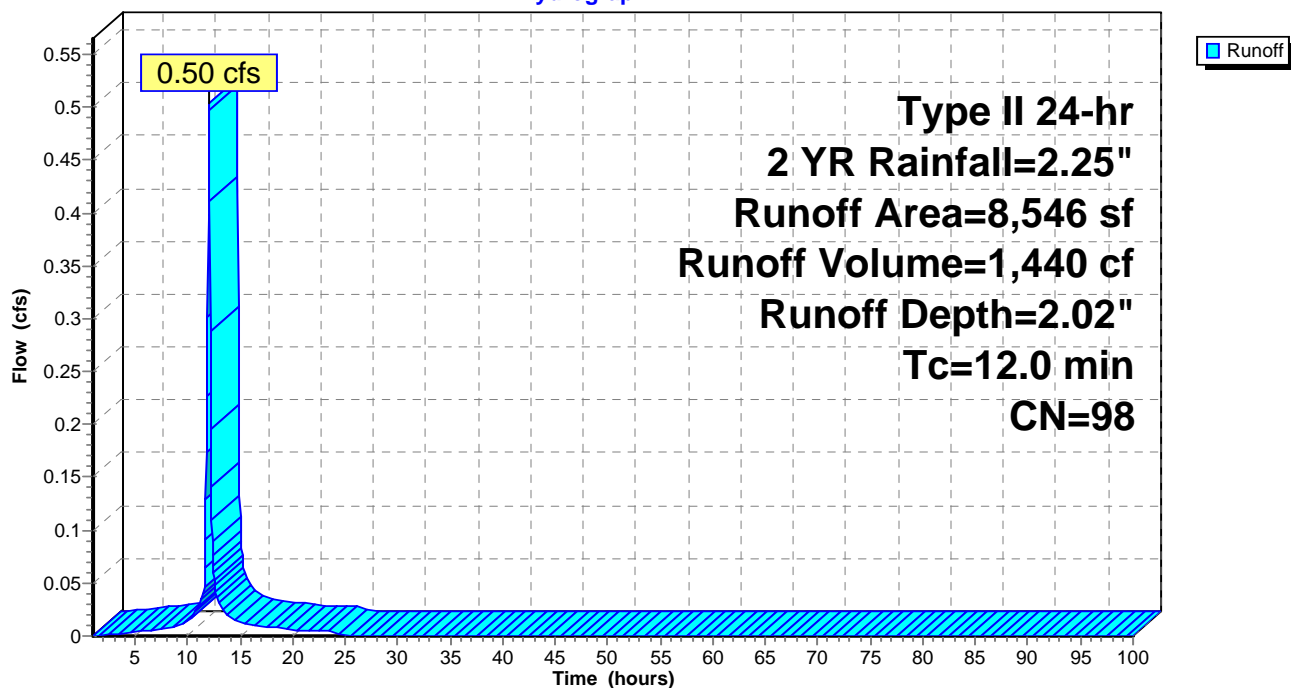
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
8,546	98	Paved parking, HSG D
8,546		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E3A: E3A**

Hydrograph



**Summary for Subcatchment E4: E4**

Runoff = 0.57 cfs @ 12.03 hrs, Volume= 1,624 cf, Depth= 2.02"

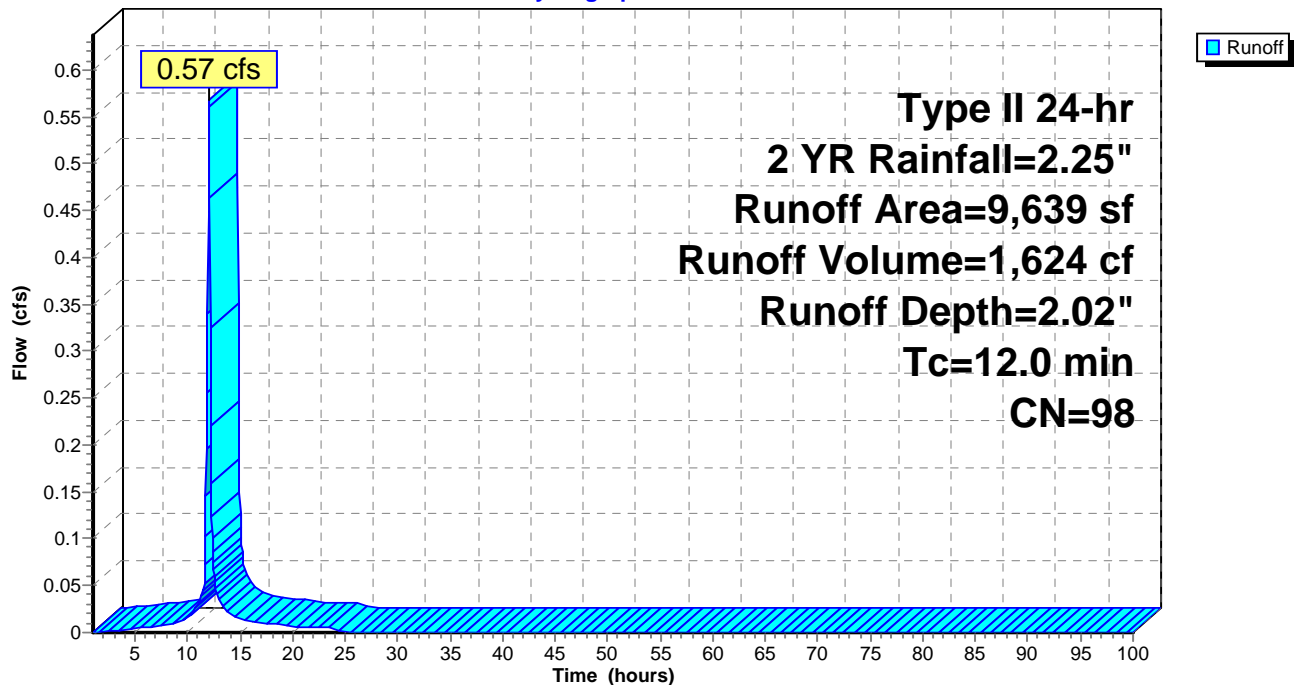
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
9,544	98	Paved parking, HSG D
95	80	>75% Grass cover, Good, HSG D
9,639	98	Weighted Average
95		0.99% Pervious Area
9,544		99.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E4: E4**

Hydrograph



**Summary for Subcatchment E5: E5**

Runoff = 0.47 cfs @ 12.03 hrs, Volume= 1,333 cf, Depth= 2.02"

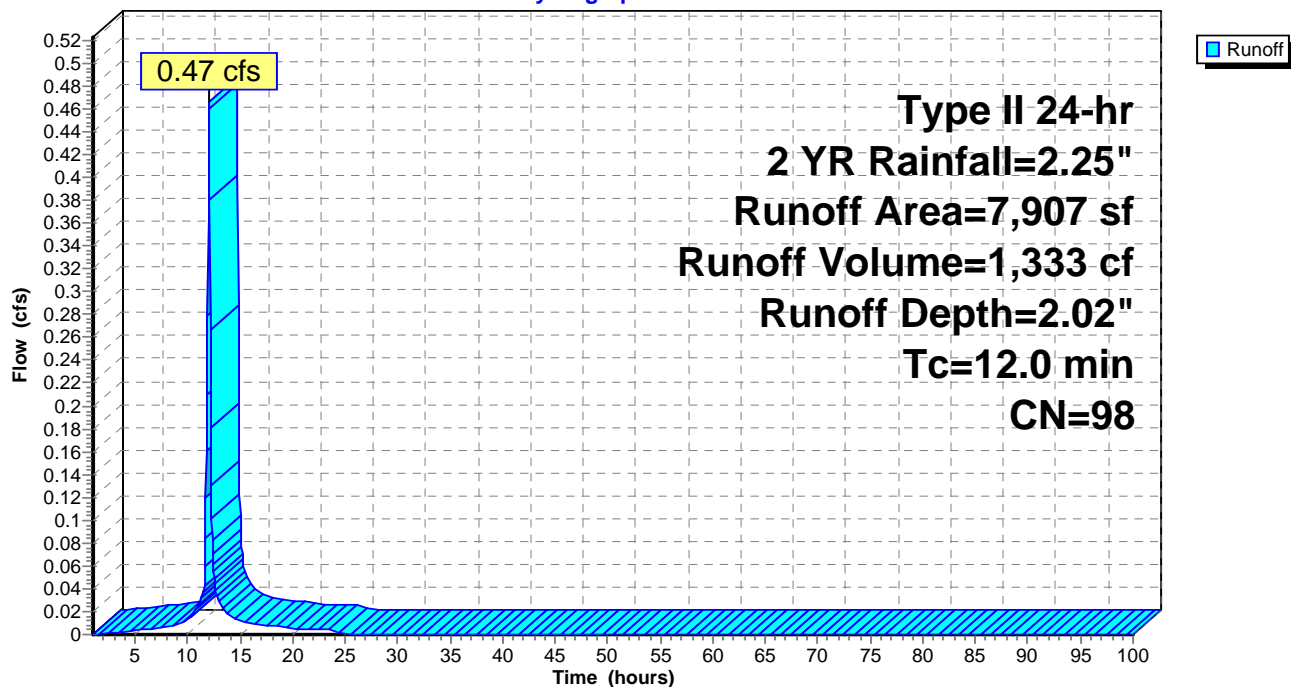
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
7,815	98	Paved parking, HSG D
92	80	>75% Grass cover, Good, HSG D
7,907	98	Weighted Average
92		1.16% Pervious Area
7,815		98.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E5: E5**

Hydrograph



**Summary for Pond DI 2107: DS #2107**

Inflow Area = 19,424 sf, 100.00% Impervious, Inflow Depth = 2.02" for 2 YR event  
 Inflow = 1.15 cfs @ 12.03 hrs, Volume= 3,274 cf  
 Outflow = 1.15 cfs @ 12.03 hrs, Volume= 3,274 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.15 cfs @ 12.03 hrs, Volume= 3,274 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.42' @ 12.03 hrs

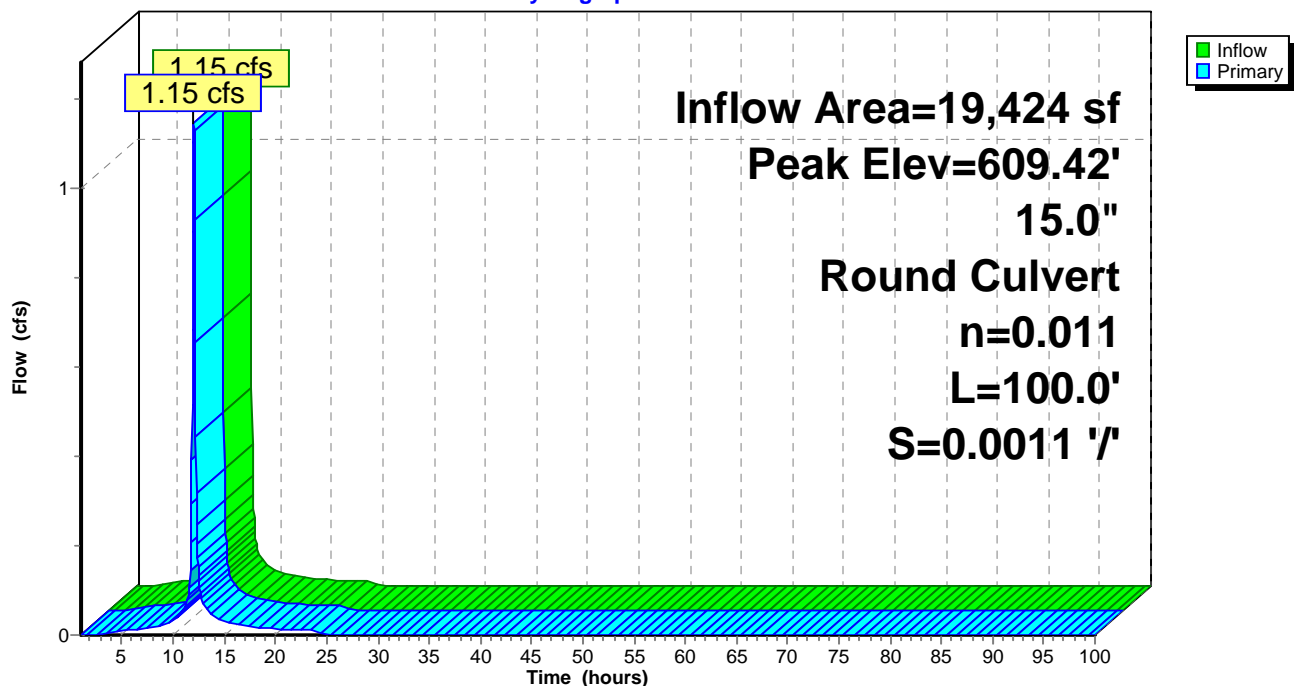
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>15.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

**Primary OutFlow** Max=1.12 cfs @ 12.03 hrs HW=609.41' TW=601.25' (Dynamic Tailwater)  
 1=Culvert (Barrel Controls 1.12 cfs @ 2.30 fps)

**Pond DI 2107: DS #2107**

Hydrograph





**Summary for Pond OAK: 30" OAK SEWER**

Inflow Area = 45,516 sf, 99.59% Impervious, Inflow Depth = 2.02" for 2 YR event  
 Inflow = 2.69 cfs @ 12.03 hrs, Volume= 7,671 cf  
 Outflow = 2.69 cfs @ 12.03 hrs, Volume= 7,671 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 2.69 cfs @ 12.03 hrs, Volume= 7,671 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 601.26' @ 12.03 hrs

Flood Elev= 647.22'

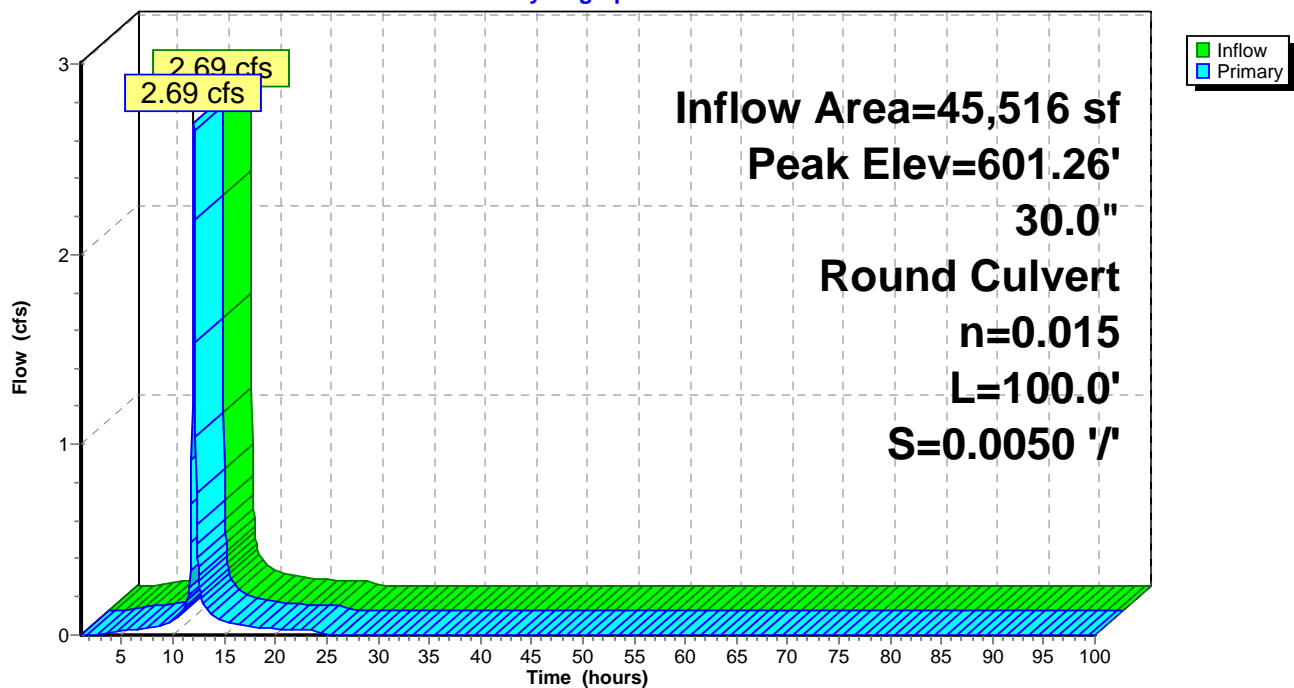
Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	<b>30.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 4.91 sf

**Primary OutFlow** Max=2.62 cfs @ 12.03 hrs HW=601.25' (Free Discharge)

1=Culvert (Barrel Controls 2.62 cfs @ 3.19 fps)

**Pond OAK: 30" OAK SEWER**

Hydrograph



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*Type II 24-hr 25 Year Rainfall=4.00"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E3: EXISTING 3**

Runoff Area=19,424 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=2.07 cfs 6,094 cf

**Subcatchment E3A: E3A**

Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.91 cfs 2,681 cf

**Subcatchment E4: E4**

Runoff Area=9,639 sf 99.01% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=1.03 cfs 3,024 cf

**Subcatchment E5: E5**

Runoff Area=7,907 sf 98.84% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=0.84 cfs 2,481 cf

**Pond DI 2107: DS #2107**

Peak Elev=609.69' Inflow=2.07 cfs 6,094 cf

15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=2.07 cfs 6,094 cf

**Pond OAK: 30" OAK SEWER**

Peak Elev=601.53' Inflow=4.85 cfs 14,281 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=4.85 cfs 14,281 cf

**Total Runoff Area = 45,516 sf   Runoff Volume = 14,281 cf   Average Runoff Depth = 3.77"**  
**0.41% Pervious = 187 sf   99.59% Impervious = 45,329 sf**

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Type II 24-hr 25 Year Rainfall=4.00"

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**Summary for Subcatchment E3: EXISTING 3**

Runoff = 2.07 cfs @ 12.03 hrs, Volume= 6,094 cf, Depth= 3.77"

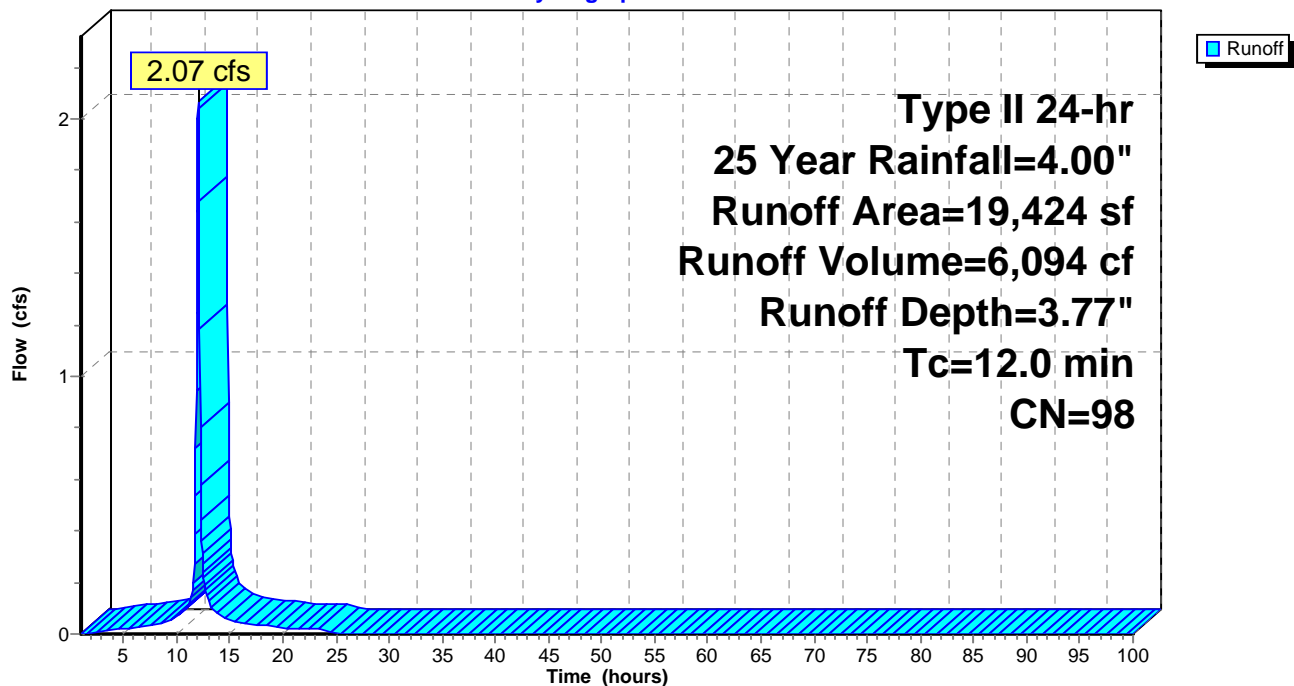
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
19,424	98	Paved parking, HSG D
19,424		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E3: EXISTING 3**

Hydrograph



**Summary for Subcatchment E3A: E3A**

Runoff = 0.91 cfs @ 12.03 hrs, Volume= 2,681 cf, Depth= 3.77"

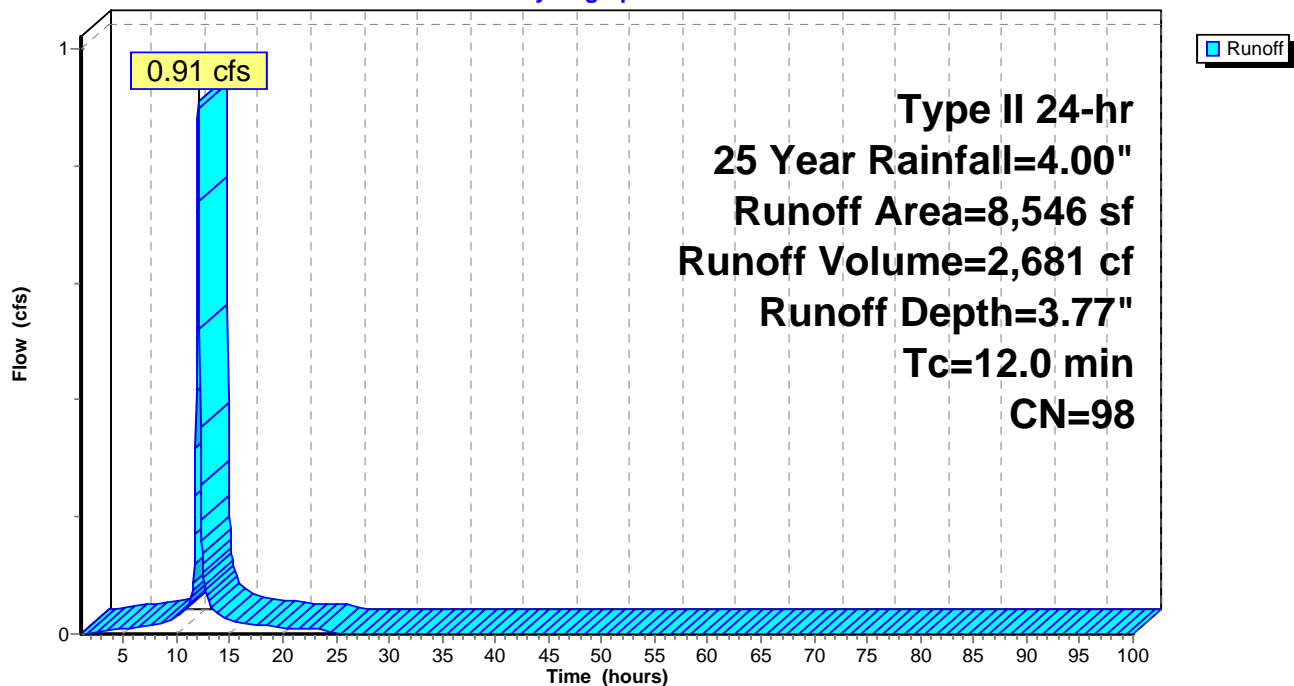
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
8,546	98	Paved parking, HSG D
8,546		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E3A: E3A**

Hydrograph



**Summary for Subcatchment E4: E4**

Runoff = 1.03 cfs @ 12.03 hrs, Volume= 3,024 cf, Depth= 3.77"

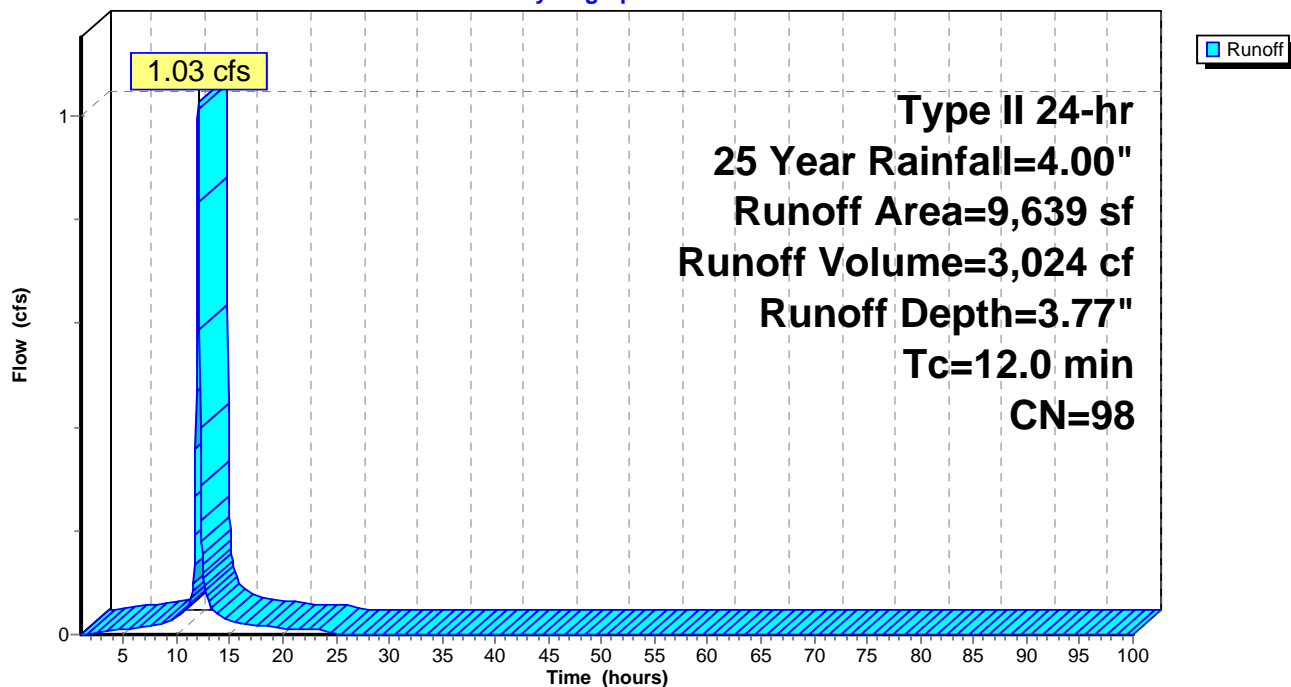
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
9,544	98	Paved parking, HSG D
95	80	>75% Grass cover, Good, HSG D
9,639	98	Weighted Average
95		0.99% Pervious Area
9,544		99.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E4: E4**

Hydrograph



**Summary for Subcatchment E5: E5**

Runoff = 0.84 cfs @ 12.03 hrs, Volume= 2,481 cf, Depth= 3.77"

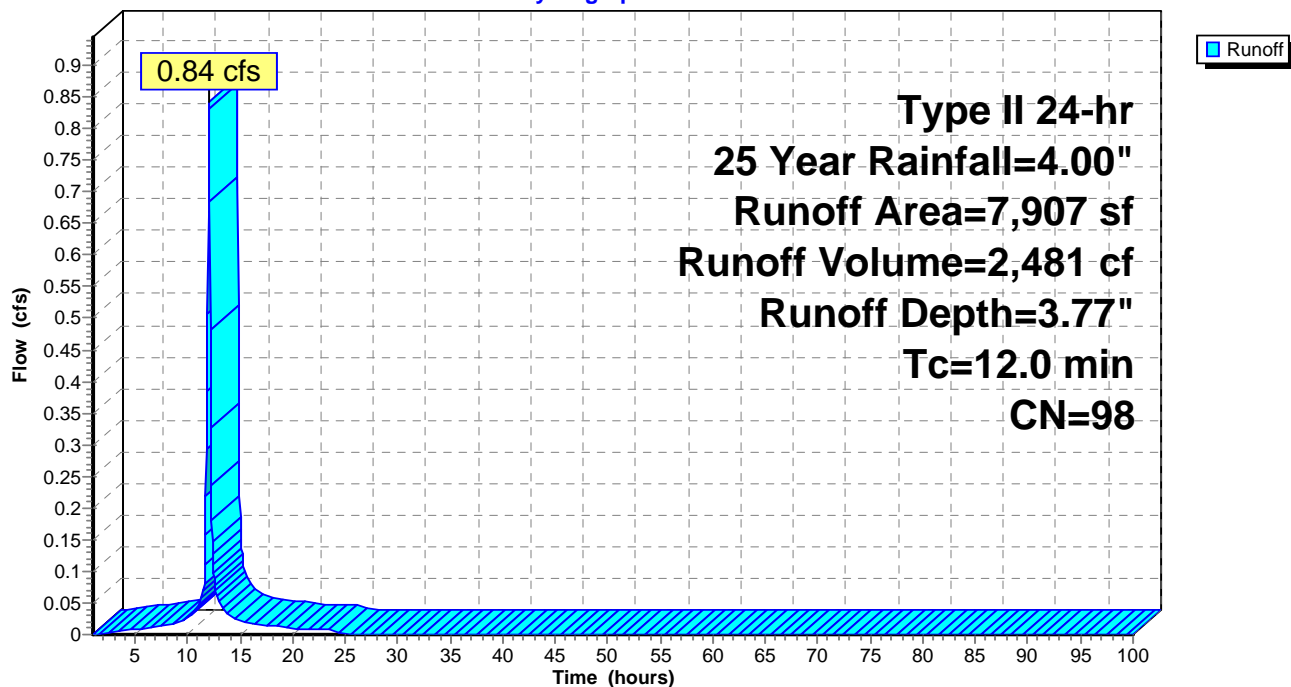
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
7,815	98	Paved parking, HSG D
92	80	>75% Grass cover, Good, HSG D
7,907	98	Weighted Average
92		1.16% Pervious Area
7,815		98.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E5: E5**

Hydrograph



**Summary for Pond DI 2107: DS #2107**

Inflow Area = 19,424 sf, 100.00% Impervious, Inflow Depth = 3.77" for 25 Year event  
 Inflow = 2.07 cfs @ 12.03 hrs, Volume= 6,094 cf  
 Outflow = 2.07 cfs @ 12.03 hrs, Volume= 6,094 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 2.07 cfs @ 12.03 hrs, Volume= 6,094 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.69' @ 12.03 hrs

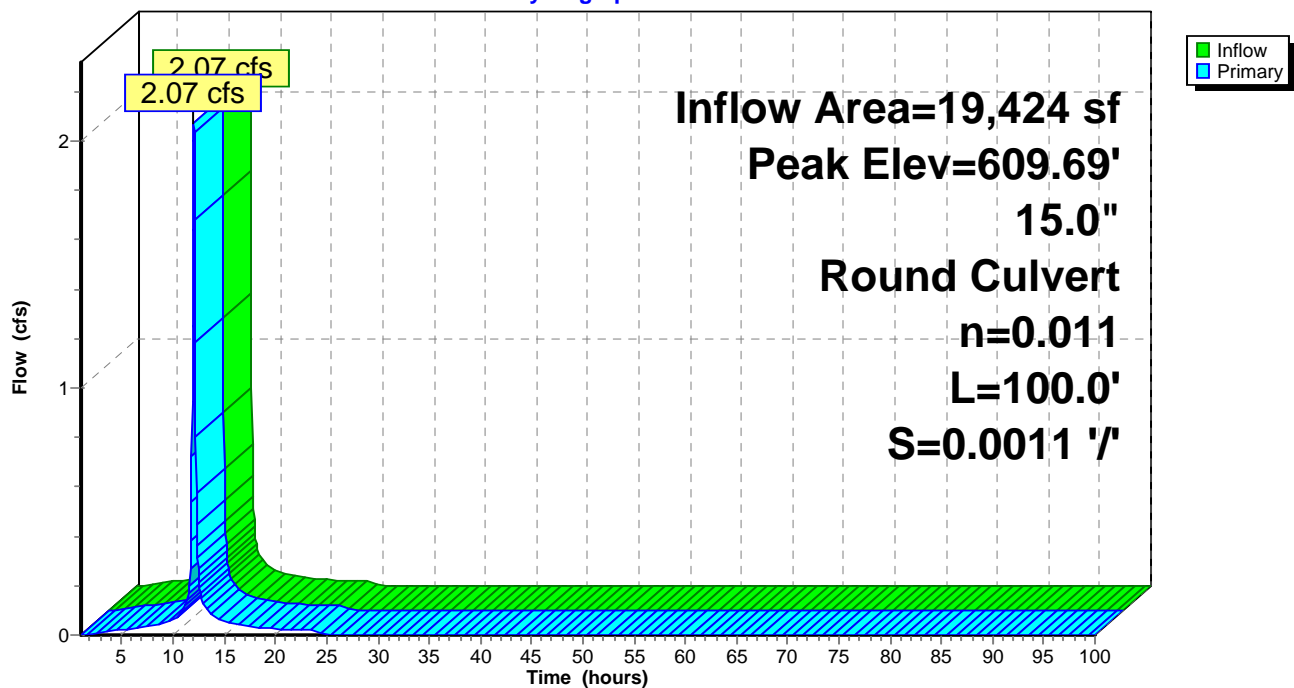
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>15.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

**Primary OutFlow** Max=2.02 cfs @ 12.03 hrs HW=609.67' TW=601.52' (Dynamic Tailwater)  
 1=Culvert (Barrel Controls 2.02 cfs @ 2.75 fps)

**Pond DI 2107: DS #2107**

Hydrograph



**Summary for Pond OAK: 30" OAK SEWER**

Inflow Area = 45,516 sf, 99.59% Impervious, Inflow Depth = 3.77" for 25 Year event  
 Inflow = 4.85 cfs @ 12.03 hrs, Volume= 14,281 cf  
 Outflow = 4.85 cfs @ 12.03 hrs, Volume= 14,281 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 4.85 cfs @ 12.03 hrs, Volume= 14,281 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 601.53' @ 12.03 hrs

Flood Elev= 647.22'

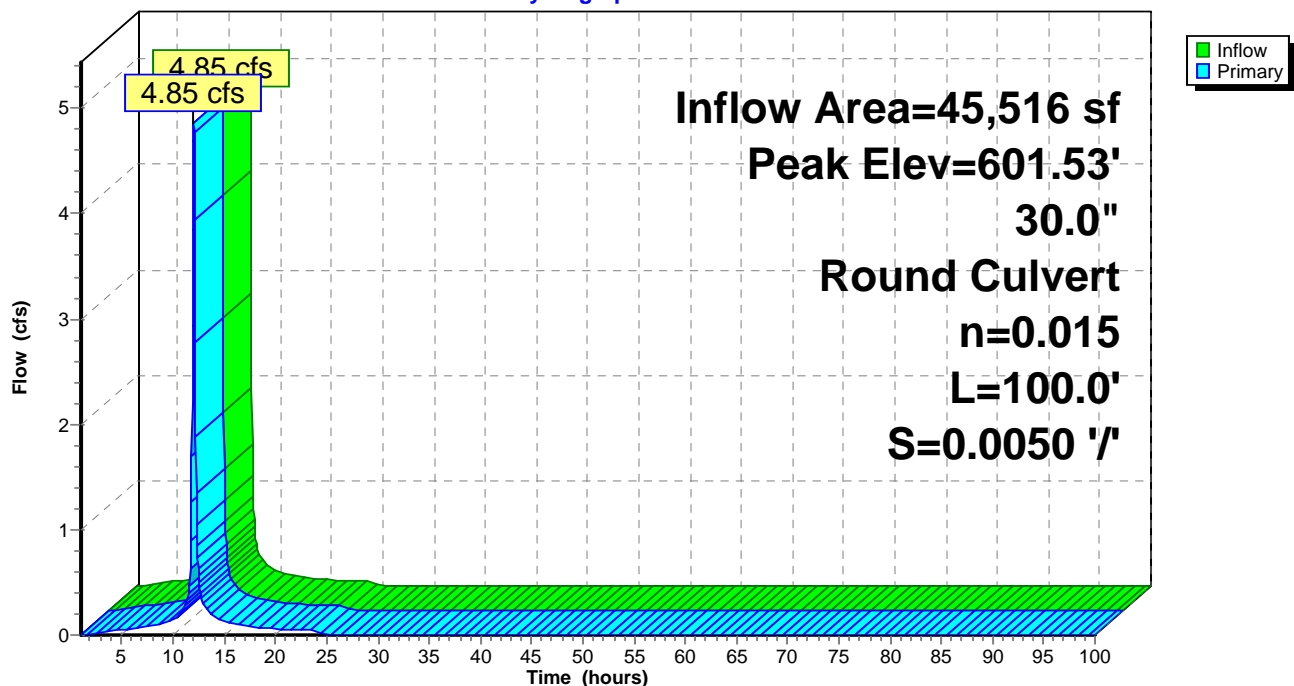
Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	<b>30.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 4.91 sf

**Primary OutFlow** Max=4.74 cfs @ 12.03 hrs HW=601.52' (Free Discharge)

1=Culvert (Barrel Controls 4.74 cfs @ 3.73 fps)

**Pond OAK: 30" OAK SEWER**

Hydrograph





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*Type II 24-hr 50% Rainfall=0.35"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E3: EXISTING 3**

Runoff Area=19,424 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.12 cfs 301 cf

**Subcatchment E3A: E3A**

Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.05 cfs 133 cf

**Subcatchment E4: E4**

Runoff Area=9,639 sf 99.01% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.06 cfs 150 cf

**Subcatchment E5: E5**

Runoff Area=7,907 sf 98.84% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.05 cfs 123 cf

**Pond DI 2107: DS #2107**

Peak Elev=608.94' Inflow=0.12 cfs 301 cf

15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=0.12 cfs 302 cf

**Pond OAK: 30" OAK SEWER**

Peak Elev=600.75' Inflow=0.28 cfs 707 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=0.28 cfs 708 cf

**Total Runoff Area = 45,516 sf   Runoff Volume = 706 cf   Average Runoff Depth = 0.19"**  
**0.41% Pervious = 187 sf   99.59% Impervious = 45,329 sf**

**Summary for Subcatchment E3: EXISTING 3**

Runoff = 0.12 cfs @ 12.04 hrs, Volume= 301 cf, Depth= 0.19"

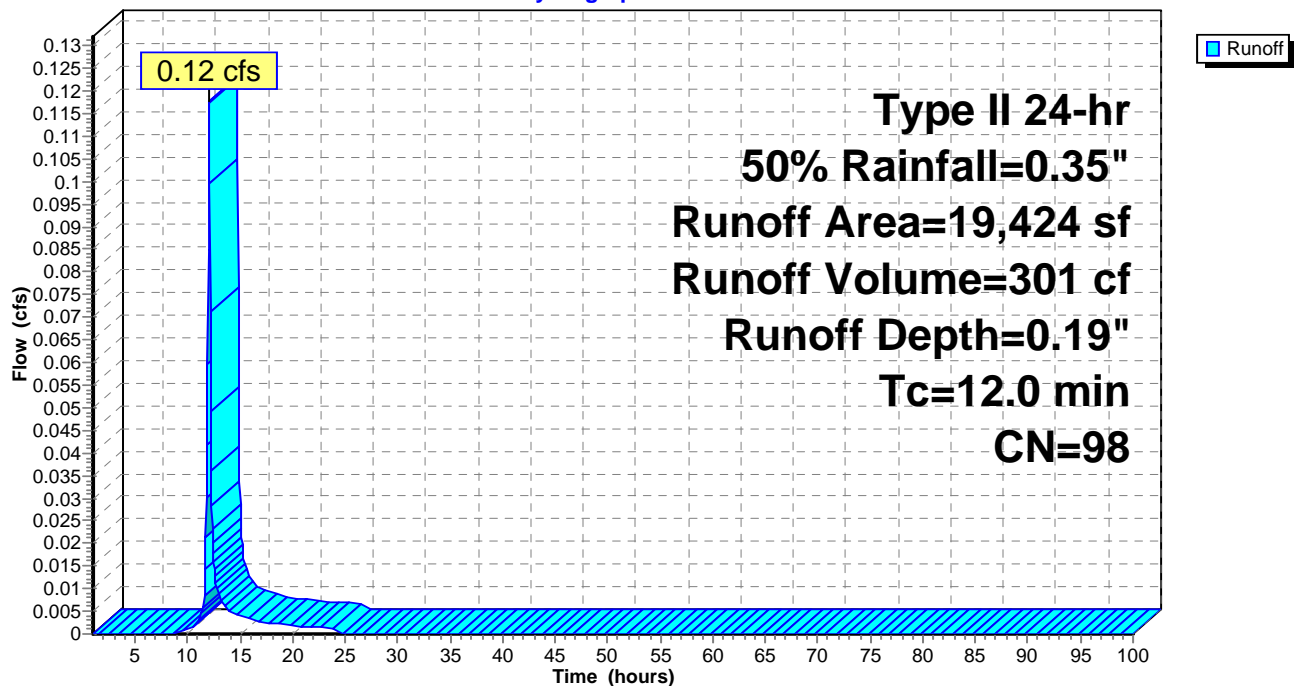
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
19,424	98	Paved parking, HSG D
19,424		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E3: EXISTING 3**

Hydrograph



**Summary for Subcatchment E3A: E3A**

Runoff = 0.05 cfs @ 12.04 hrs, Volume= 133 cf, Depth= 0.19"

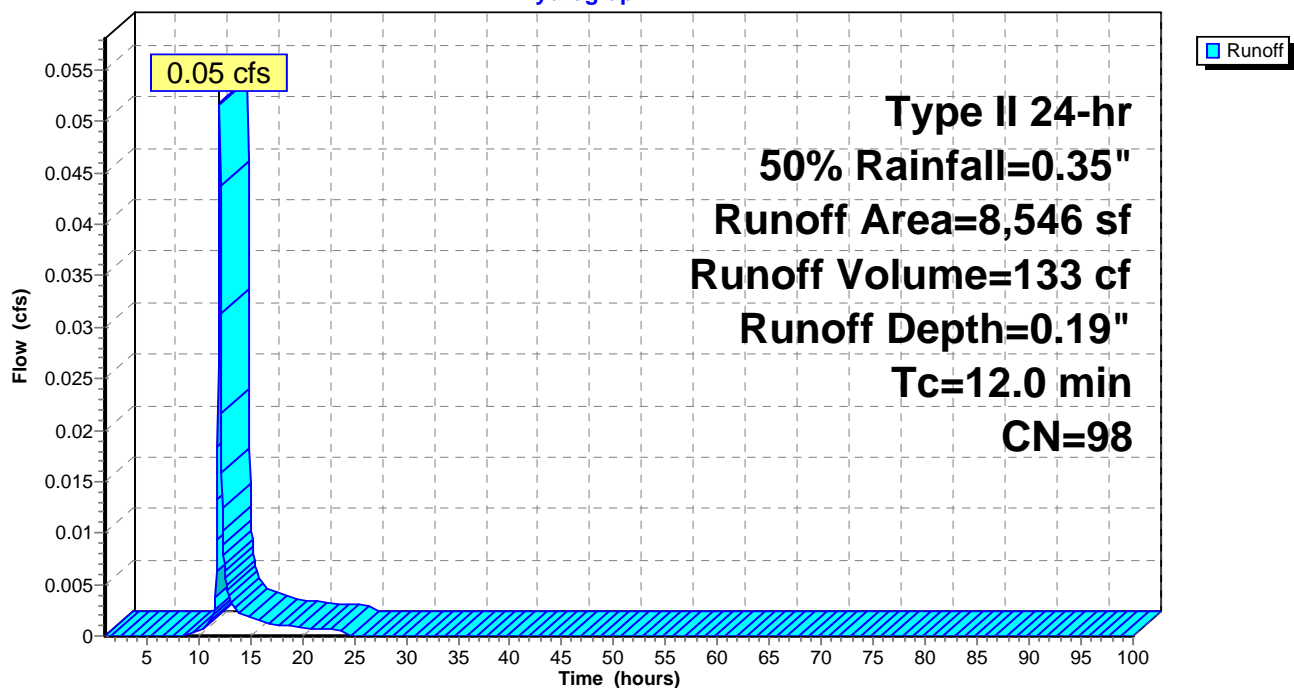
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
8,546	98	Paved parking, HSG D
8,546		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E3A: E3A**

Hydrograph



**Summary for Subcatchment E4: E4**

Runoff = 0.06 cfs @ 12.04 hrs, Volume= 150 cf, Depth= 0.19"

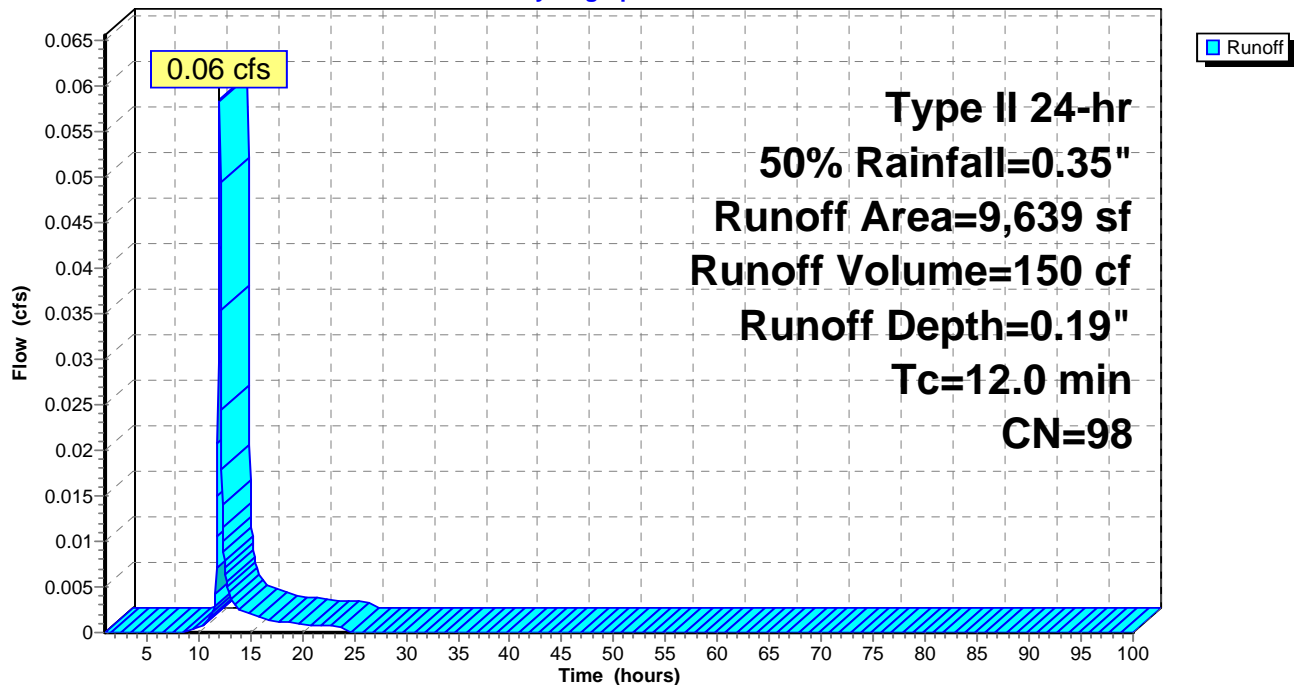
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
9,544	98	Paved parking, HSG D
95	80	>75% Grass cover, Good, HSG D
9,639	98	Weighted Average
95		0.99% Pervious Area
9,544		99.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E4: E4**

Hydrograph



**Summary for Subcatchment E5: E5**

Runoff = 0.05 cfs @ 12.04 hrs, Volume= 123 cf, Depth= 0.19"

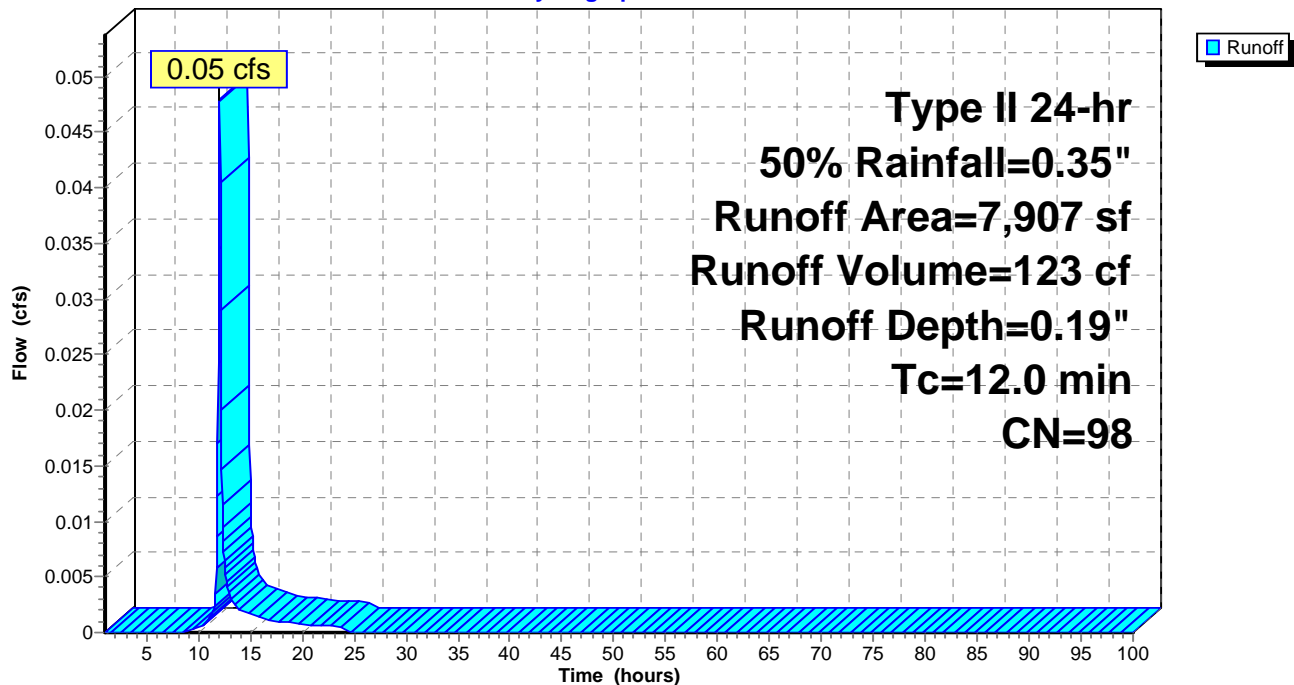
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
7,815	98	Paved parking, HSG D
92	80	>75% Grass cover, Good, HSG D
7,907	98	Weighted Average
92		1.16% Pervious Area
7,815		98.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E5: E5**

Hydrograph



**Summary for Pond DI 2107: DS #2107**

Inflow Area = 19,424 sf, 100.00% Impervious, Inflow Depth = 0.19" for 50% event  
 Inflow = 0.12 cfs @ 12.04 hrs, Volume= 301 cf  
 Outflow = 0.12 cfs @ 12.04 hrs, Volume= 302 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.12 cfs @ 12.04 hrs, Volume= 302 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 608.94' @ 12.04 hrs

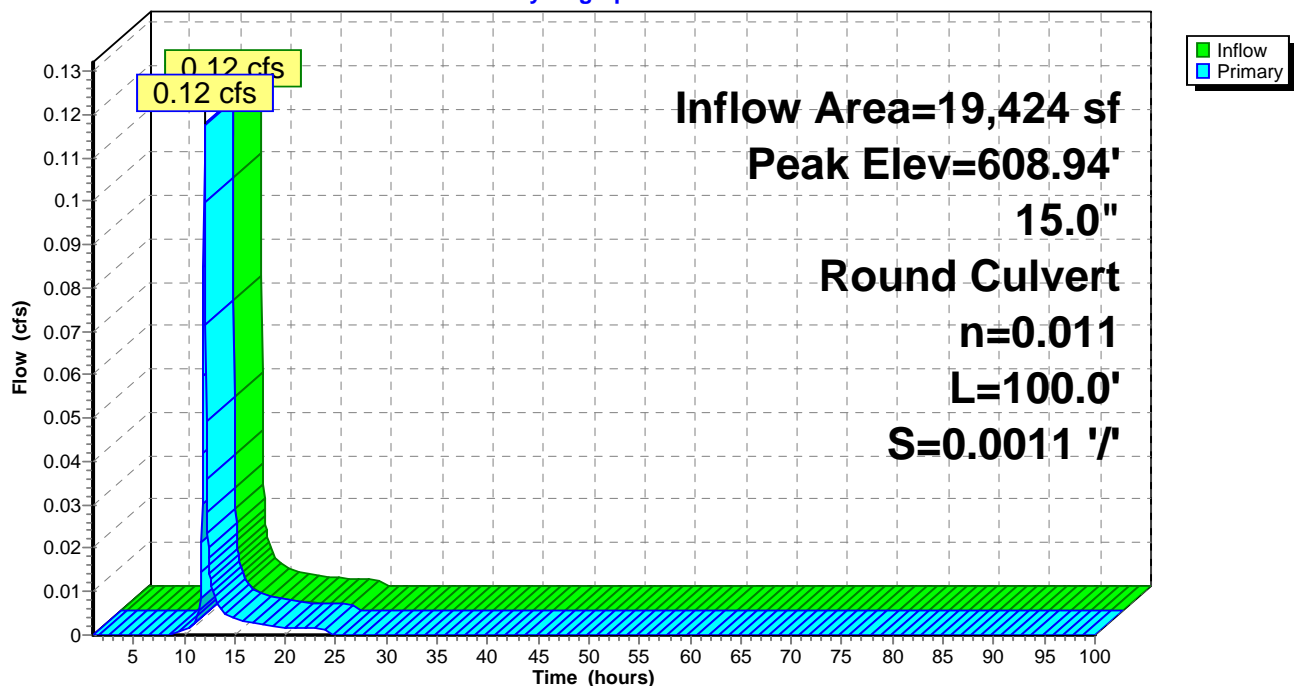
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>15.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

**Primary OutFlow** Max=0.12 cfs @ 12.04 hrs HW=608.94' TW=600.74' (Dynamic Tailwater)  
 1=Culvert (Barrel Controls 0.12 cfs @ 1.13 fps)

**Pond DI 2107: DS #2107**

Hydrograph



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Type II 24-hr 50% Rainfall=0.35"

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### Summary for Pond OAK: 30" OAK SEWER

Inflow Area = 45,516 sf, 99.59% Impervious, Inflow Depth = 0.19" for 50% event  
Inflow = 0.28 cfs @ 12.04 hrs, Volume= 707 cf  
Outflow = 0.28 cfs @ 12.04 hrs, Volume= 708 cf, Atten= 0%, Lag= 0.0 min  
Primary = 0.28 cfs @ 12.04 hrs, Volume= 708 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 600.75' @ 12.04 hrs

Flood Elev= 647.22'

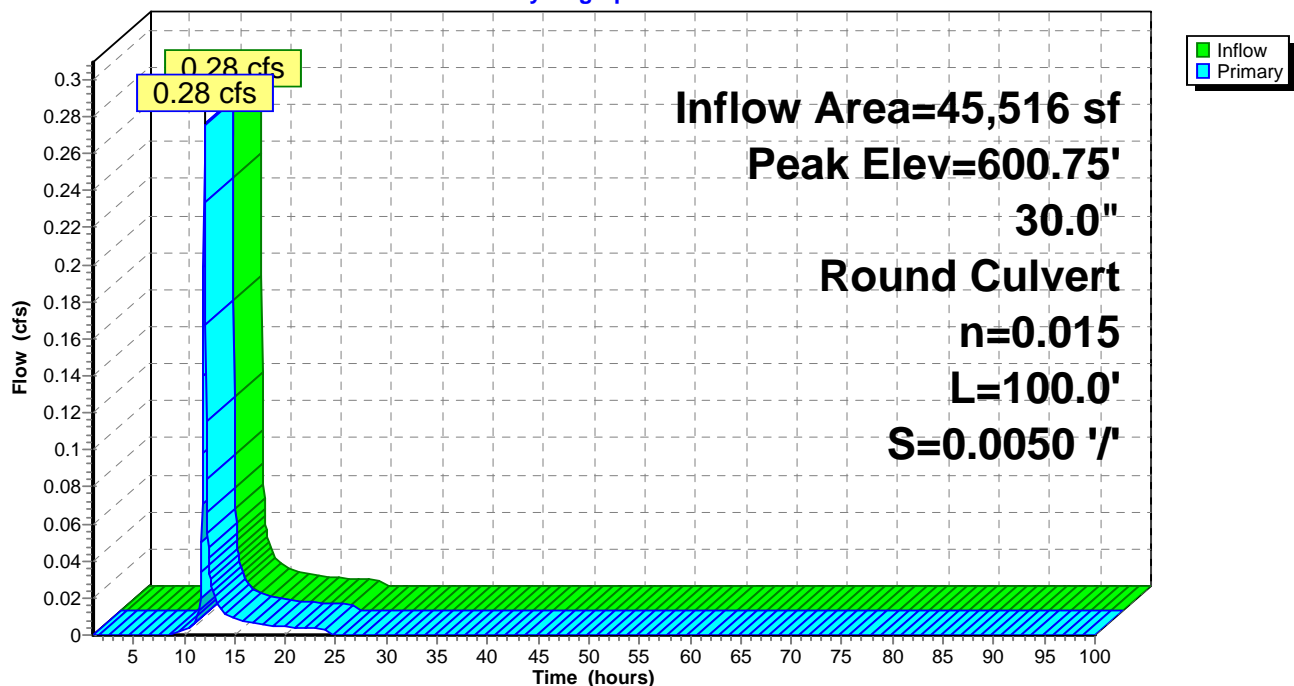
Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	<b>30.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 4.91 sf

**Primary OutFlow** Max=0.27 cfs @ 12.04 hrs HW=600.74' (Free Discharge)

1=Culvert (Barrel Controls 0.27 cfs @ 1.68 fps)

### Pond OAK: 30" OAK SEWER

Hydrograph



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*Type II 24-hr 75% Rainfall=0.50"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E3: EXISTING 3**

Runoff Area=19,424 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.20 cfs 515 cf

**Subcatchment E3A: E3A**

Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.09 cfs 226 cf

**Subcatchment E4: E4**

Runoff Area=9,639 sf 99.01% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.10 cfs 255 cf

**Subcatchment E5: E5**

Runoff Area=7,907 sf 98.84% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.08 cfs 209 cf

**Pond DI 2107: DS #2107**

Peak Elev=609.01' Inflow=0.20 cfs 515 cf

15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=0.20 cfs 515 cf

**Pond OAK: 30" OAK SEWER**

Peak Elev=600.82' Inflow=0.47 cfs 1,206 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=0.47 cfs 1,207 cf

**Total Runoff Area = 45,516 sf   Runoff Volume = 1,206 cf   Average Runoff Depth = 0.32"**  
**0.41% Pervious = 187 sf   99.59% Impervious = 45,329 sf**



**Summary for Subcatchment E3: EXISTING 3**

Runoff = 0.20 cfs @ 12.04 hrs, Volume= 515 cf, Depth= 0.32"

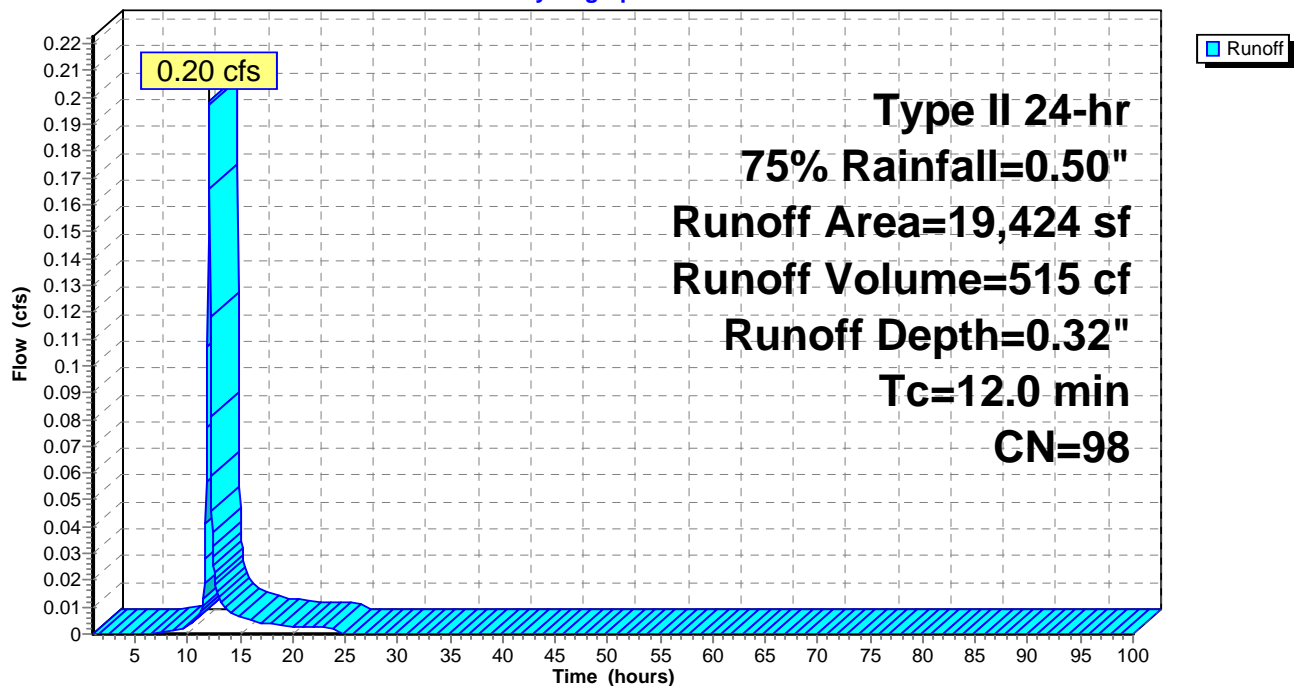
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
19,424	98	Paved parking, HSG D
19,424		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E3: EXISTING 3**

Hydrograph



**Summary for Subcatchment E3A: E3A**

Runoff = 0.09 cfs @ 12.04 hrs, Volume= 226 cf, Depth= 0.32"

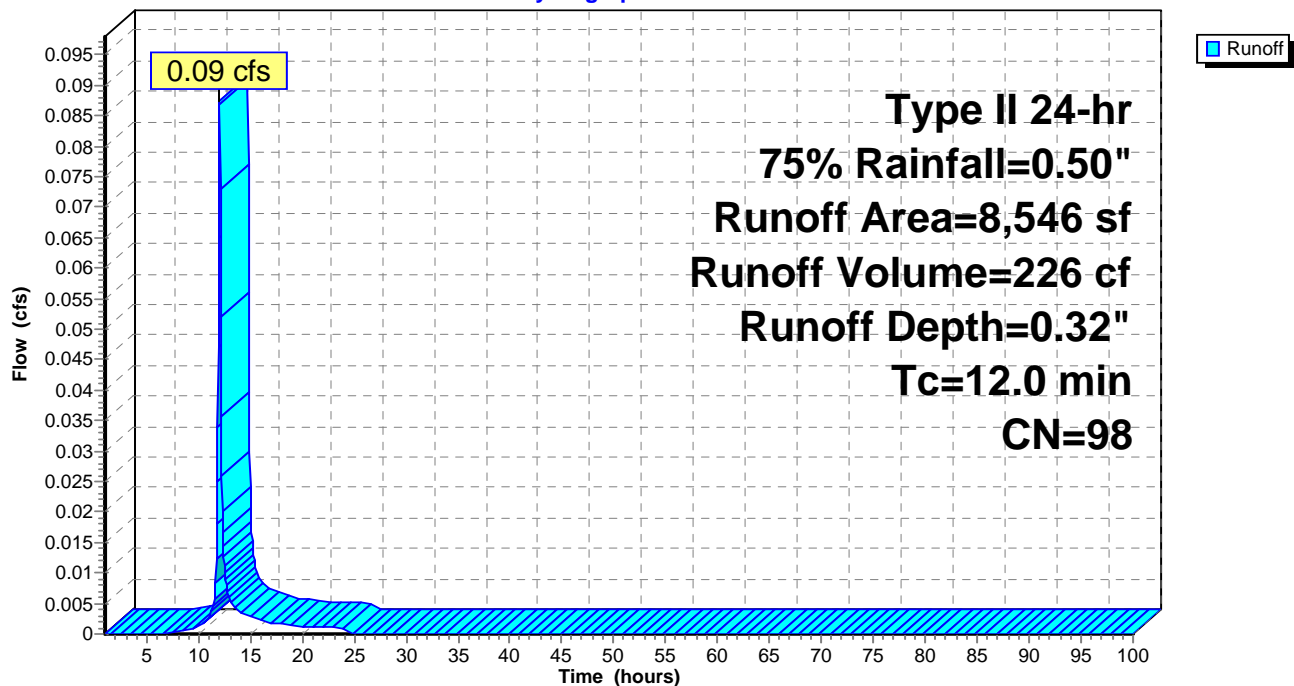
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
8,546	98	Paved parking, HSG D
8,546		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E3A: E3A**

Hydrograph



**Summary for Subcatchment E4: E4**

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 255 cf, Depth= 0.32"

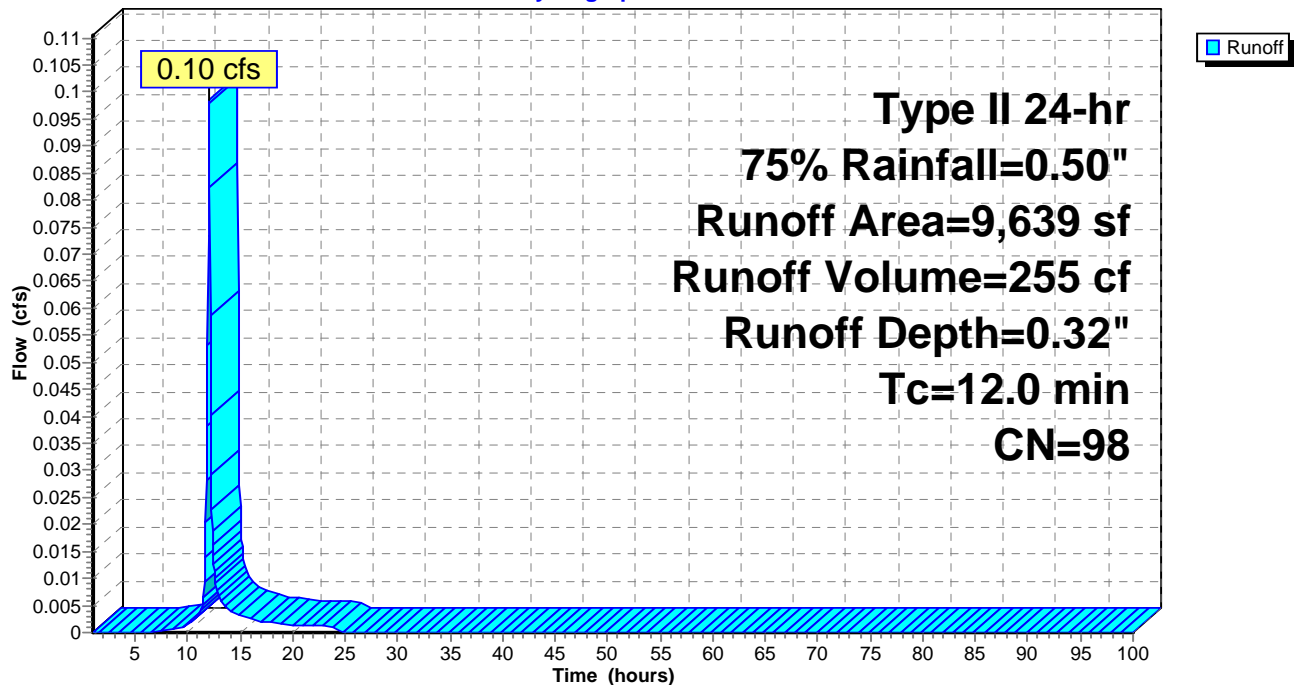
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
9,544	98	Paved parking, HSG D
95	80	>75% Grass cover, Good, HSG D
9,639	98	Weighted Average
95		0.99% Pervious Area
9,544		99.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E4: E4**

Hydrograph



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Type II 24-hr 75% Rainfall=0.50"

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**Summary for Subcatchment E5: E5**

Runoff = 0.08 cfs @ 12.04 hrs, Volume= 209 cf, Depth= 0.32"

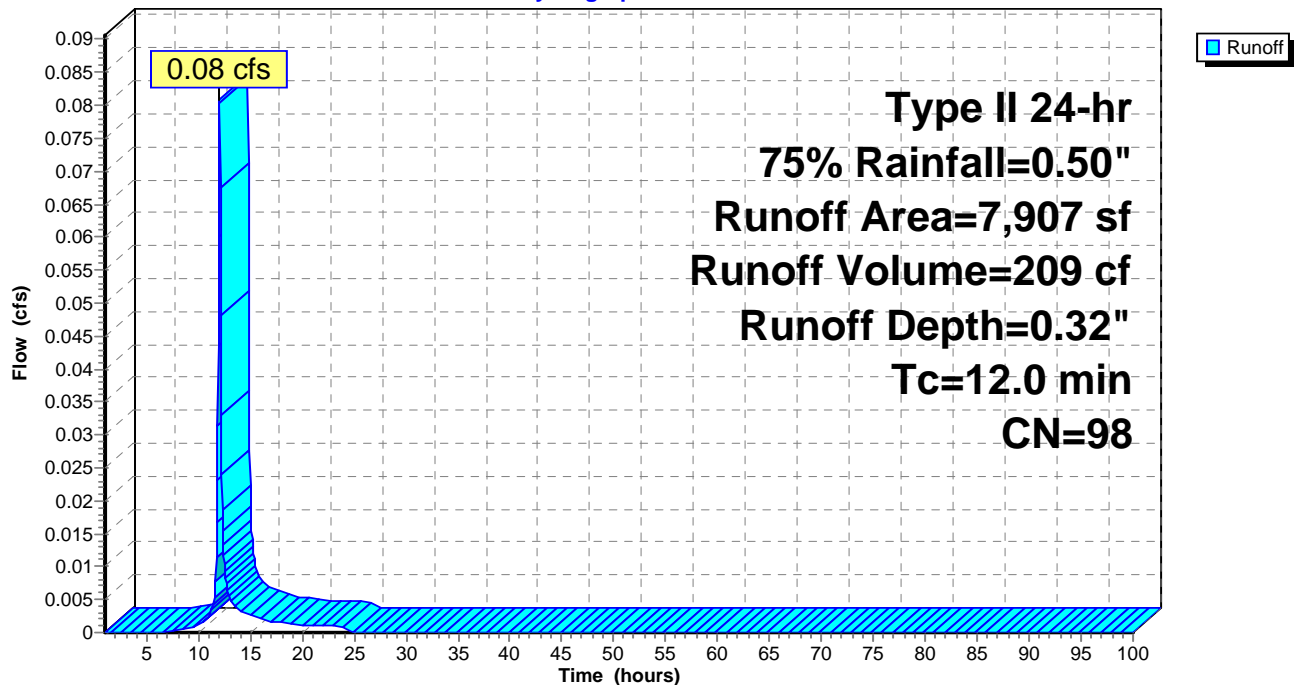
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
7,815	98	Paved parking, HSG D
92	80	>75% Grass cover, Good, HSG D
7,907	98	Weighted Average
92		1.16% Pervious Area
7,815		98.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E5: E5**

Hydrograph



**Summary for Pond DI 2107: DS #2107**

Inflow Area = 19,424 sf, 100.00% Impervious, Inflow Depth = 0.32" for 75% event  
 Inflow = 0.20 cfs @ 12.04 hrs, Volume= 515 cf  
 Outflow = 0.20 cfs @ 12.04 hrs, Volume= 515 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.20 cfs @ 12.04 hrs, Volume= 515 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.01' @ 12.04 hrs

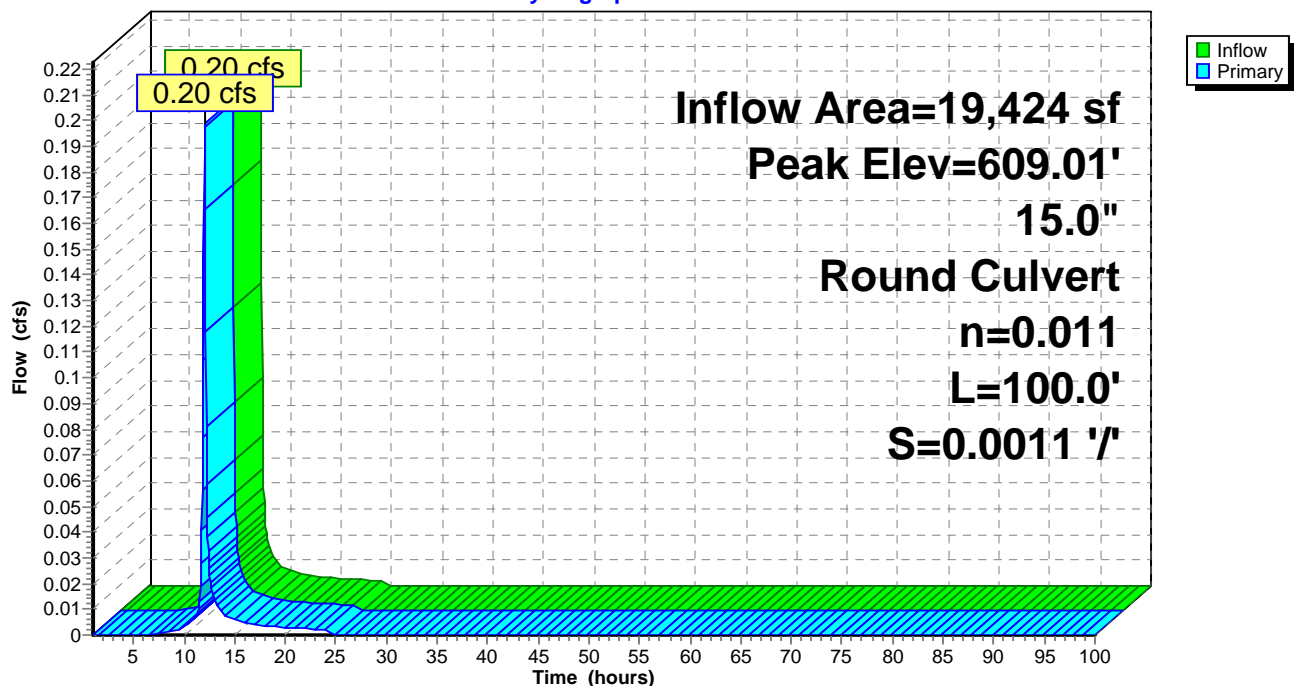
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>15.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

**Primary OutFlow** Max=0.19 cfs @ 12.04 hrs HW=609.00' TW=600.81' (Dynamic Tailwater)  
 ↳ **1=Culvert** (Barrel Controls 0.19 cfs @ 1.34 fps)

**Pond DI 2107: DS #2107**

Hydrograph



**Summary for Pond OAK: 30" OAK SEWER**

Inflow Area = 45,516 sf, 99.59% Impervious, Inflow Depth = 0.32" for 75% event  
 Inflow = 0.47 cfs @ 12.04 hrs, Volume= 1,206 cf  
 Outflow = 0.47 cfs @ 12.04 hrs, Volume= 1,207 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.47 cfs @ 12.04 hrs, Volume= 1,207 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 600.82' @ 12.04 hrs

Flood Elev= 647.22'

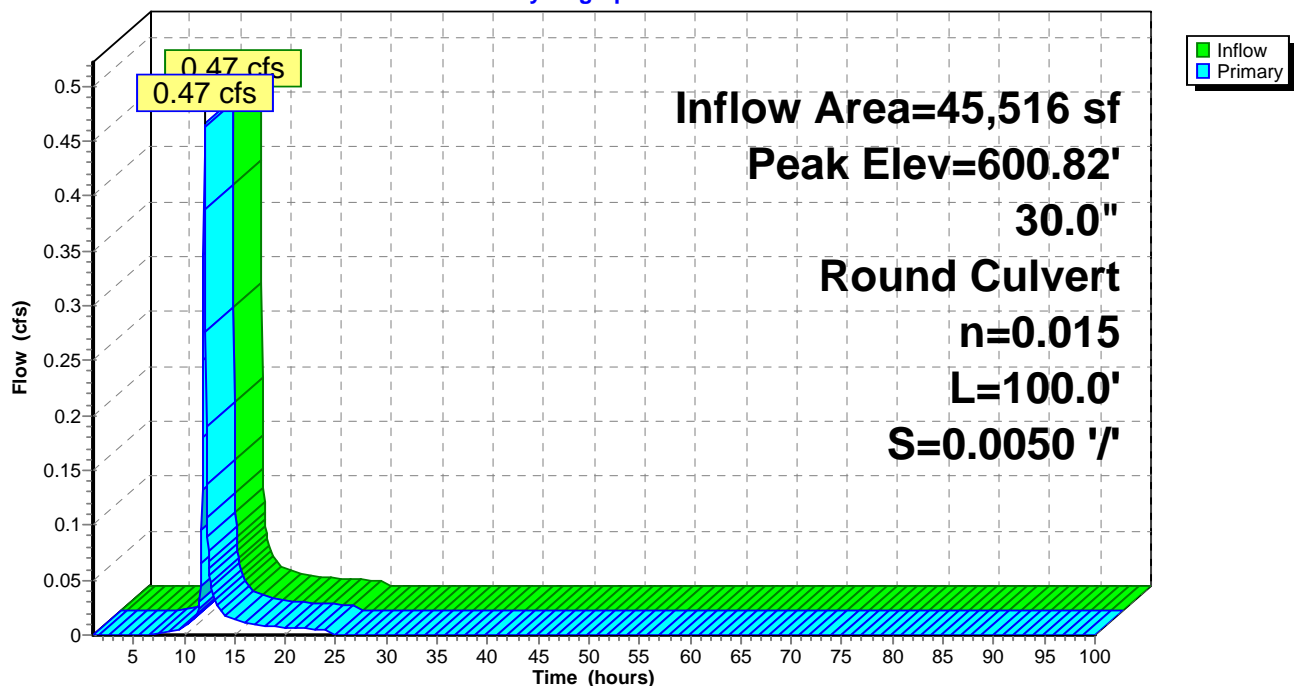
Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	<b>30.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 4.91 sf

**Primary OutFlow** Max=0.46 cfs @ 12.04 hrs HW=600.81' (Free Discharge)

1=Culvert (Barrel Controls 0.46 cfs @ 1.95 fps)

**Pond OAK: 30" OAK SEWER**

Hydrograph



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*Type II 24-hr WQv Rainfall=0.85"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E3: EXISTING 3**Runoff Area=19,424 sf 100.00% Impervious Runoff Depth=0.65"  
Tc=12.0 min CN=98 Runoff=0.39 cfs 1,046 cf**Subcatchment E3A: E3A**Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=0.65"  
Tc=12.0 min CN=98 Runoff=0.17 cfs 460 cf**Subcatchment E4: E4**Runoff Area=9,639 sf 99.01% Impervious Runoff Depth=0.65"  
Tc=12.0 min CN=98 Runoff=0.19 cfs 519 cf**Subcatchment E5: E5**Runoff Area=7,907 sf 98.84% Impervious Runoff Depth=0.65"  
Tc=12.0 min CN=98 Runoff=0.16 cfs 426 cf**Pond DI 2107: DS #2107**Peak Elev=609.12' Inflow=0.39 cfs 1,046 cf  
15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=0.39 cfs 1,046 cf**Pond OAK: 30" OAK SEWER**Peak Elev=600.94' Inflow=0.92 cfs 2,451 cf  
30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=0.92 cfs 2,452 cf**Total Runoff Area = 45,516 sf   Runoff Volume = 2,451 cf   Average Runoff Depth = 0.65"**  
**0.41% Pervious = 187 sf   99.59% Impervious = 45,329 sf**

**Summary for Subcatchment E3: EXISTING 3**

Runoff = 0.39 cfs @ 12.03 hrs, Volume= 1,046 cf, Depth= 0.65"

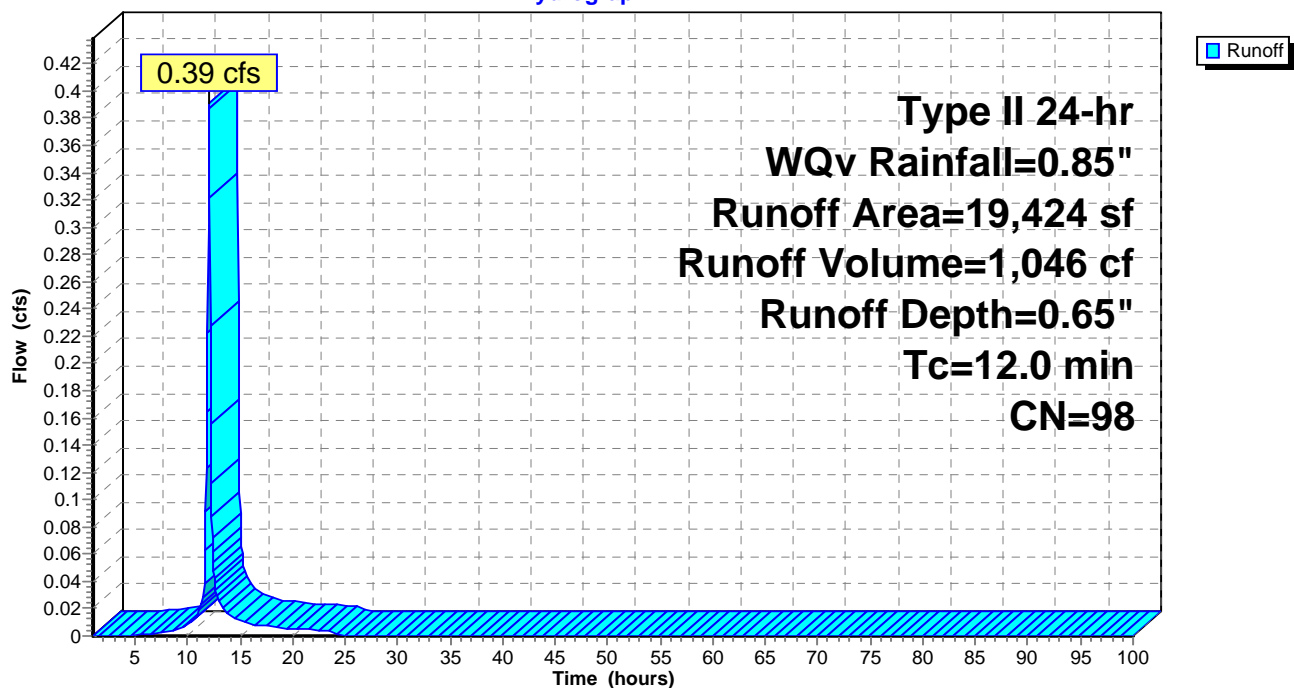
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
19,424	98	Paved parking, HSG D
19,424		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E3: EXISTING 3**

Hydrograph





**Summary for Subcatchment E3A: E3A**

Runoff = 0.17 cfs @ 12.03 hrs, Volume= 460 cf, Depth= 0.65"

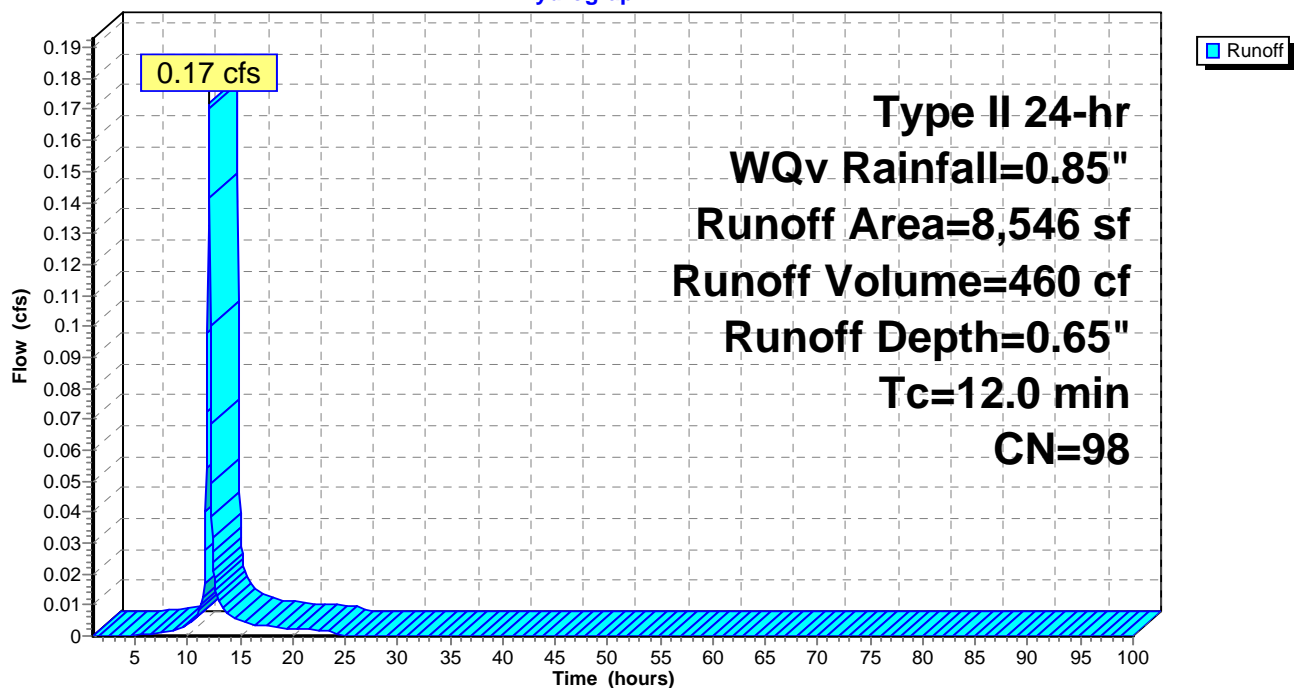
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
8,546	98	Paved parking, HSG D
8,546		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E3A: E3A**

Hydrograph



**Summary for Subcatchment E4: E4**

Runoff = 0.19 cfs @ 12.03 hrs, Volume= 519 cf, Depth= 0.65"

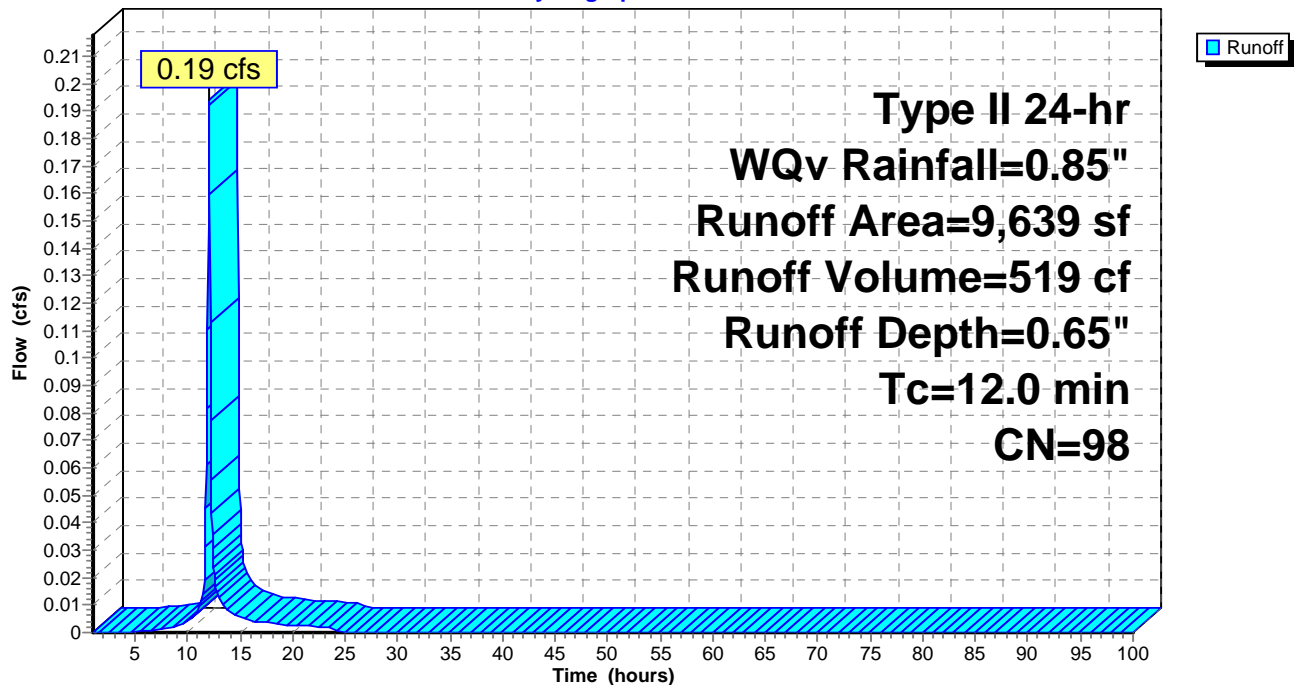
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
9,544	98	Paved parking, HSG D
95	80	>75% Grass cover, Good, HSG D
9,639	98	Weighted Average
95		0.99% Pervious Area
9,544		99.01% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E4: E4**

Hydrograph



**Summary for Subcatchment E5: E5**

Runoff = 0.16 cfs @ 12.03 hrs, Volume= 426 cf, Depth= 0.65"

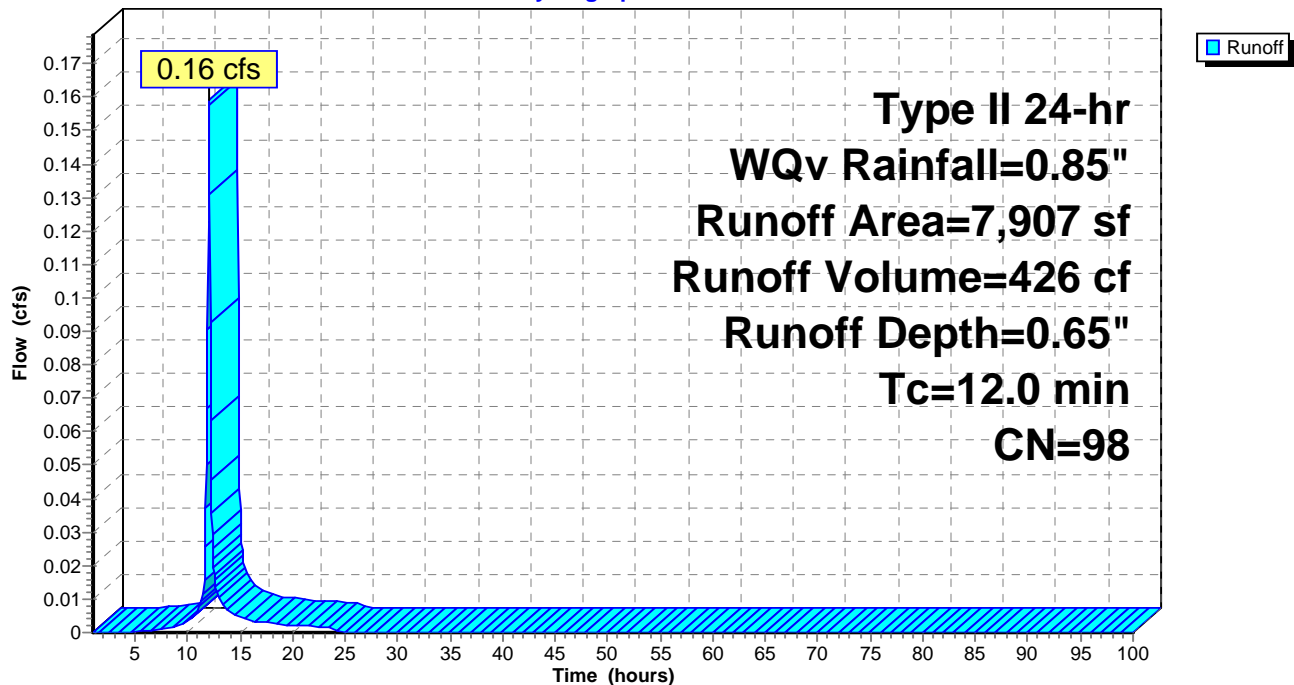
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
7,815	98	Paved parking, HSG D
92	80	>75% Grass cover, Good, HSG D
7,907	98	Weighted Average
92		1.16% Pervious Area
7,815		98.84% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E5: E5**

Hydrograph



**Summary for Pond DI 2107: DS #2107**

Inflow Area = 19,424 sf, 100.00% Impervious, Inflow Depth = 0.65" for WQv event  
 Inflow = 0.39 cfs @ 12.03 hrs, Volume= 1,046 cf  
 Outflow = 0.39 cfs @ 12.03 hrs, Volume= 1,046 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.39 cfs @ 12.03 hrs, Volume= 1,046 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.12' @ 12.03 hrs

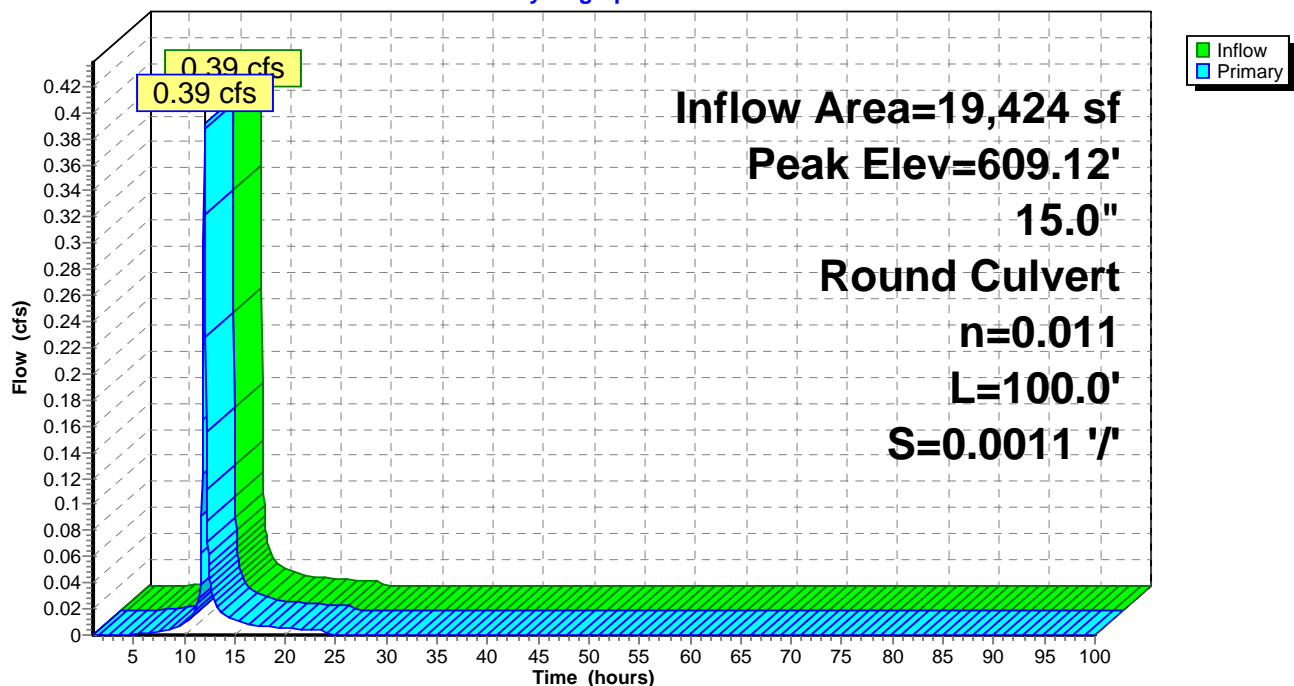
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>15.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

**Primary OutFlow** Max=0.38 cfs @ 12.03 hrs HW=609.12' TW=600.94' (Dynamic Tailwater)  
 ↳ **1=Culvert** (Barrel Controls 0.38 cfs @ 1.65 fps)

**Pond DI 2107: DS #2107**

Hydrograph



**Summary for Pond OAK: 30" OAK SEWER**

Inflow Area = 45,516 sf, 99.59% Impervious, Inflow Depth = 0.65" for WQv event  
 Inflow = 0.92 cfs @ 12.03 hrs, Volume= 2,451 cf  
 Outflow = 0.92 cfs @ 12.03 hrs, Volume= 2,452 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.92 cfs @ 12.03 hrs, Volume= 2,452 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 600.94' @ 12.03 hrs

Flood Elev= 647.22'

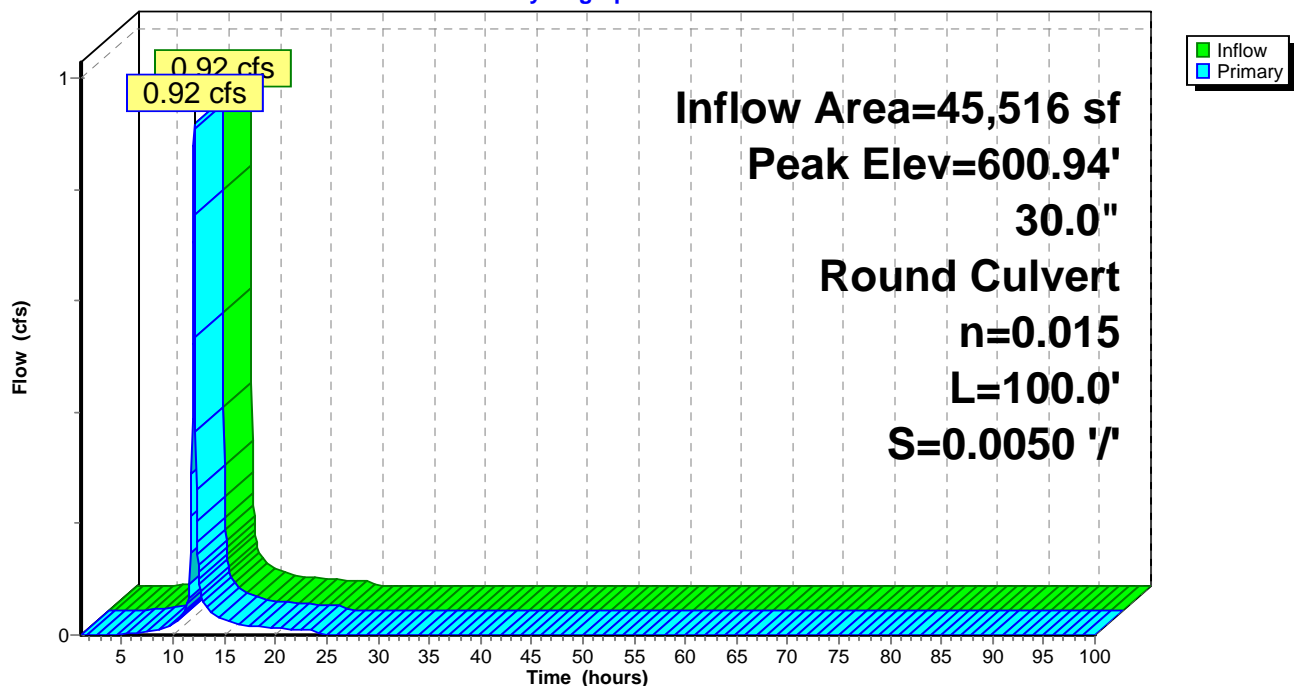
Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	<b>30.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 4.91 sf

**Primary OutFlow** Max=0.90 cfs @ 12.03 hrs HW=600.94' (Free Discharge)

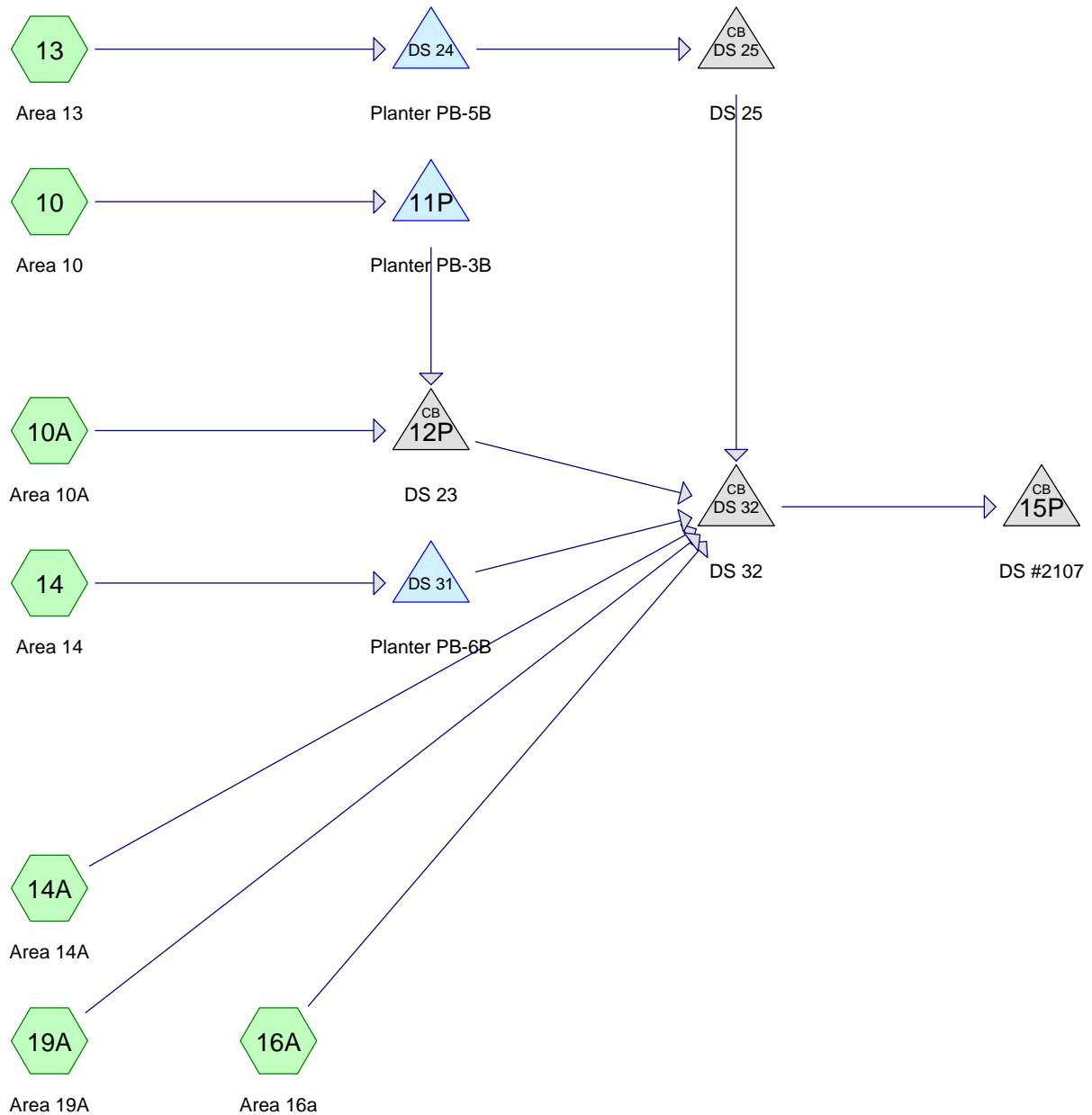
1=Culvert (Barrel Controls 0.90 cfs @ 2.37 fps)

**Pond OAK: 30" OAK SEWER**

Hydrograph



PROPOSED TO OAK  
ST SEWER



**Routing Diagram for Genesee St Final**

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### Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
379	80	>75% Grass cover, Good, HSG D (10, 13, 14, 16A)
35,681	98	Paved parking, HSG D (10, 10A, 13, 14, 14A, 16A, 19A)
<b>36,060</b>	<b>98</b>	<b>TOTAL AREA</b>

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### Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
36,060	HSG D	10, 10A, 13, 14, 14A, 16A, 19A
0	Other	
<b>36,060</b>		<b>TOTAL AREA</b>



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**Ground Covers (selected nodes)**

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
0	0	0	379	0	379	>75% Grass cover, Good	
0	0	0	35,681	0	35,681	Paved parking	
<b>0</b>	<b>0</b>	<b>0</b>	<b>36,060</b>	<b>0</b>	<b>36,060</b>	<b>TOTAL AREA</b>	

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**Pipe Listing (selected nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	11P	612.67	612.60	6.0	0.0117	0.013	6.0	0.0	0.0
2	11P	610.61	610.61	47.0	0.0000	0.010	6.0	0.0	0.0
3	12P	612.13	611.59	125.0	0.0043	0.010	10.0	0.0	0.0
4	15P	608.71	608.60	100.0	0.0011	0.011	15.0	0.0	0.0
5	DS 24	611.57	611.50	6.0	0.0117	0.010	6.0	0.0	0.0
6	DS 24	609.64	609.64	35.0	0.0000	0.010	6.0	0.0	0.0
7	DS 25	610.48	610.00	77.0	0.0062	0.010	10.0	0.0	0.0
8	DS 31	610.37	610.31	5.0	0.0120	0.013	6.0	0.0	0.0
9	DS 31	609.25	609.25	42.0	0.0000	0.010	6.0	0.0	0.0
10	DS 32	608.71	608.60	77.0	0.0014	0.012	12.0	0.0	0.0

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Type II 24-hr 2 YR Rainfall=2.25"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 10: Area 10</b>	Runoff Area=4,155 sf 97.18% Impervious Runoff Depth=1.92" Tc=12.0 min CN=97 Runoff=0.24 cfs 664 cf
<b>Subcatchment 10A: Area 10A</b>	Runoff Area=4,995 sf 100.00% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.29 cfs 842 cf
<b>Subcatchment 13: Area 13</b>	Runoff Area=6,143 sf 98.68% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.36 cfs 1,035 cf
<b>Subcatchment 14: Area 14</b>	Runoff Area=3,043 sf 95.60% Impervious Runoff Depth=1.92" Tc=12.0 min CN=97 Runoff=0.17 cfs 486 cf
<b>Subcatchment 14A: Area 14A</b>	Runoff Area=1,224 sf 100.00% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.07 cfs 206 cf
<b>Subcatchment 16A: Area 16a</b>	Runoff Area=7,954 sf 99.41% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.47 cfs 1,340 cf
<b>Subcatchment 19A: Area 19A</b>	Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.50 cfs 1,440 cf
<b>Pond 11P: Planter PB-3B</b>	Peak Elev=615.10' Storage=565 cf Inflow=0.24 cfs 664 cf Outflow=0.00 cfs 260 cf
<b>Pond 12P: DS 23</b>	Peak Elev=612.44' Inflow=0.30 cfs 1,101 cf 10.0" Round Culvert n=0.010 L=125.0' S=0.0043 '/' Outflow=0.30 cfs 1,104 cf
<b>Pond 15P: DS #2107</b>	Peak Elev=609.60' Inflow=1.76 cfs 5,421 cf 15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=1.76 cfs 5,423 cf
<b>Pond DS 24: Planter PB-5B</b>	Peak Elev=614.19' Storage=254 cf Inflow=0.36 cfs 1,035 cf Outflow=0.42 cfs 924 cf
<b>Pond DS 25: DS 25</b>	Peak Elev=610.83' Inflow=0.42 cfs 924 cf 10.0" Round Culvert n=0.010 L=77.0' S=0.0062 '/' Outflow=0.42 cfs 926 cf
<b>Pond DS 31: Planter PB-6B</b>	Peak Elev=613.76' Storage=297 cf Inflow=0.17 cfs 486 cf Outflow=0.07 cfs 400 cf
<b>Pond DS 32: DS 32</b>	Peak Elev=609.88' Inflow=1.76 cfs 5,416 cf 12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/' Outflow=1.76 cfs 5,421 cf

**Total Runoff Area = 36,060 sf Runoff Volume = 6,014 cf Average Runoff Depth = 2.00"**  
**1.05% Pervious = 379 sf 98.95% Impervious = 35,681 sf**

**Summary for Subcatchment 10: Area 10**

Runoff = 0.24 cfs @ 12.03 hrs, Volume= 664 cf, Depth= 1.92"

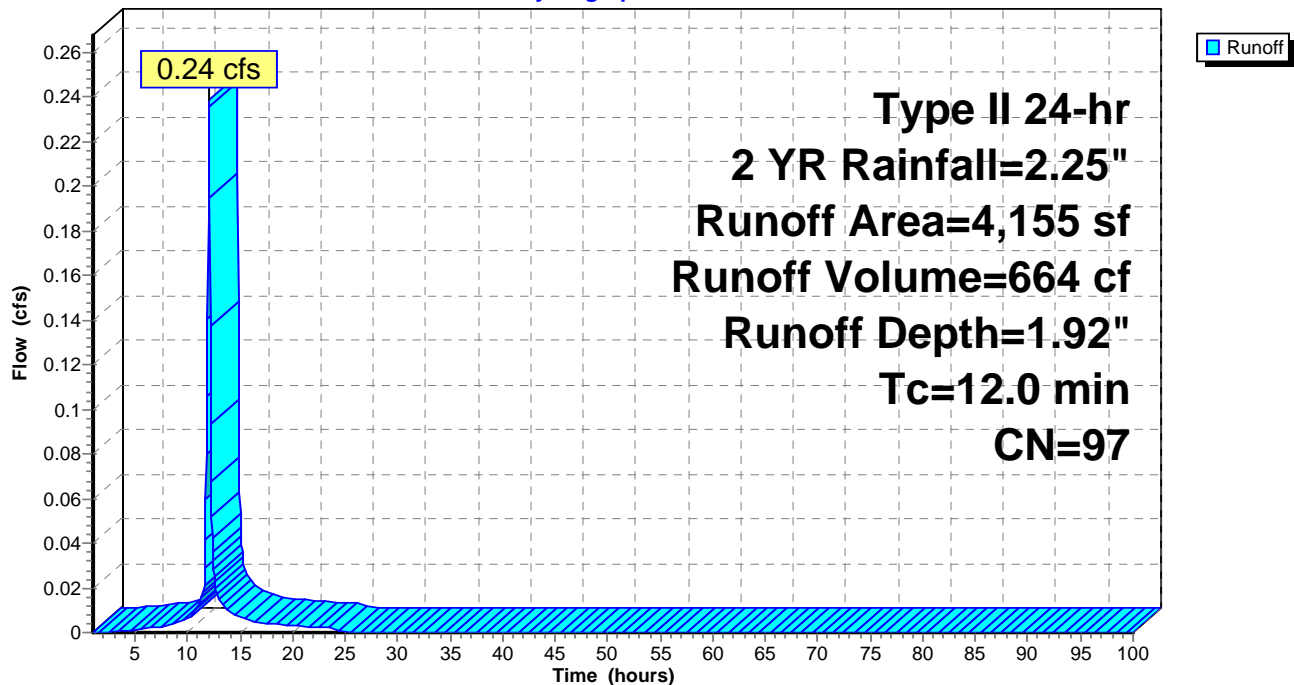
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
117	80	>75% Grass cover, Good, HSG D
4,038	98	Paved parking, HSG D
4,155	97	Weighted Average
117		2.82% Pervious Area
4,038		97.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 10: Area 10**

Hydrograph



**Summary for Subcatchment 10A: Area 10A**

Runoff = 0.29 cfs @ 12.03 hrs, Volume= 842 cf, Depth= 2.02"

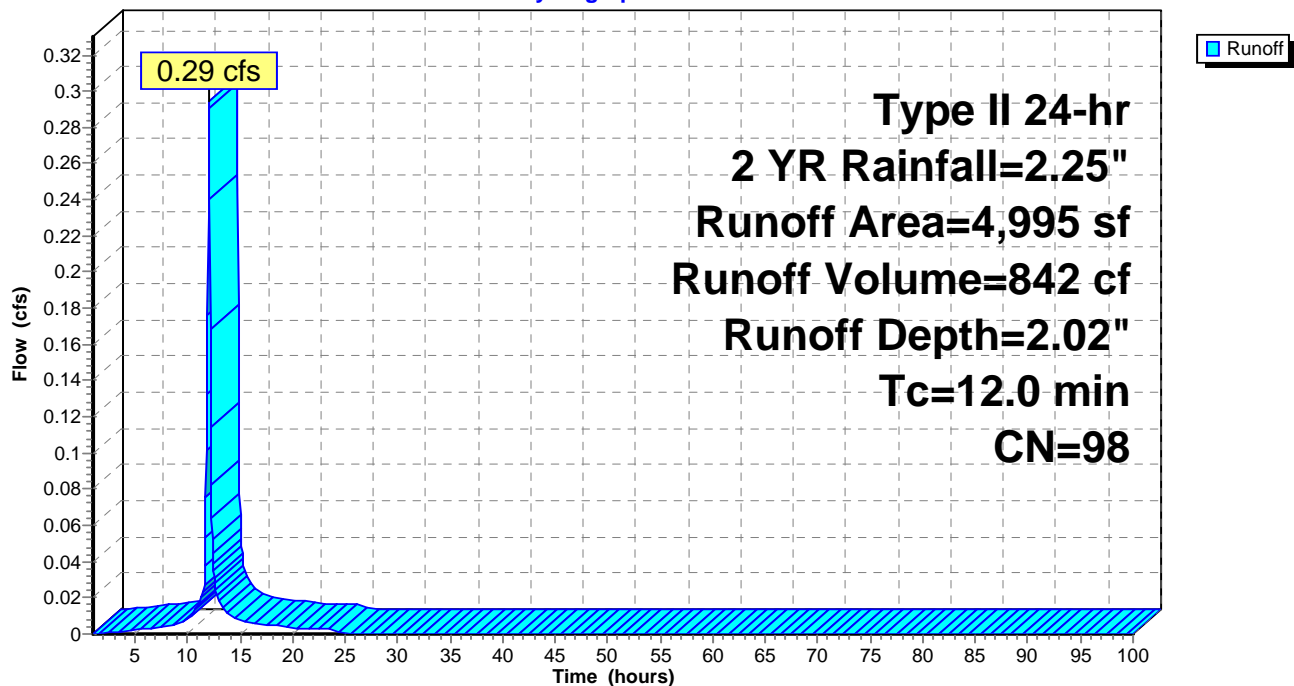
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
4,995	98	Paved parking, HSG D
4,995		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 10A: Area 10A**

Hydrograph



**Summary for Subcatchment 13: Area 13**

Runoff = 0.36 cfs @ 12.03 hrs, Volume= 1,035 cf, Depth= 2.02"

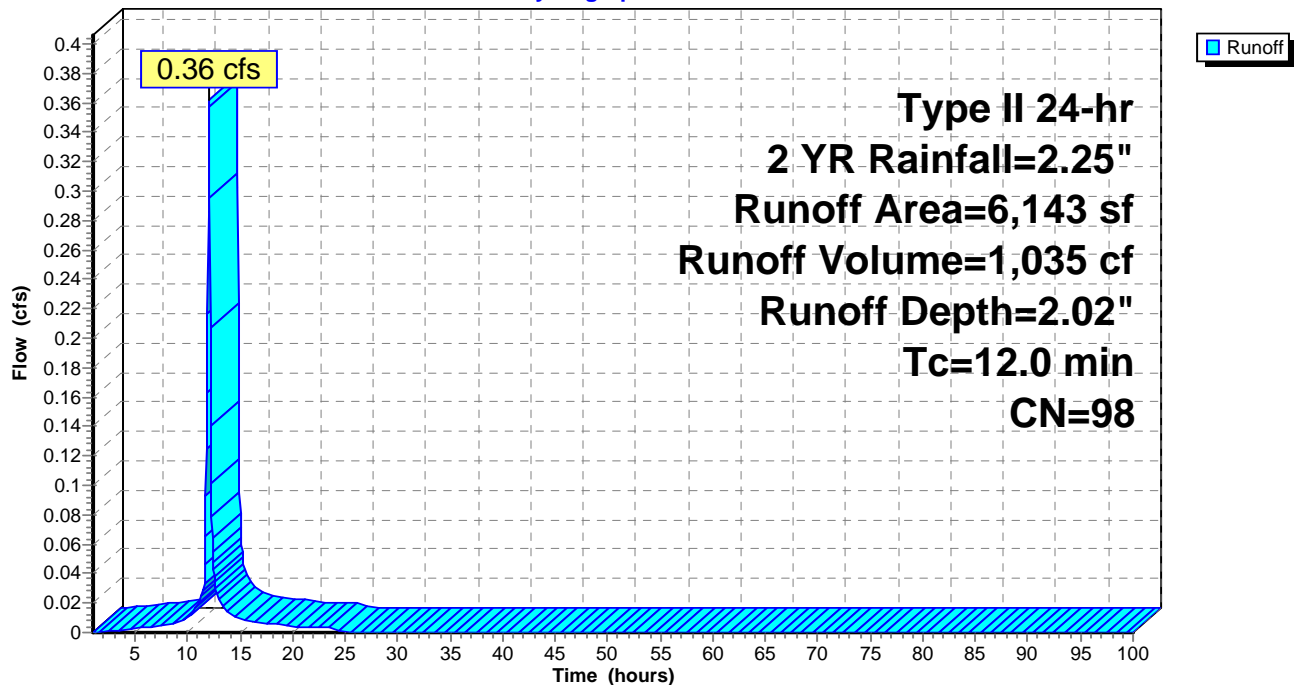
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
81	80	>75% Grass cover, Good, HSG D
6,062	98	Paved parking, HSG D
6,143	98	Weighted Average
81		1.32% Pervious Area
6,062		98.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 13: Area 13**

Hydrograph



**Summary for Subcatchment 14: Area 14**

Runoff = 0.17 cfs @ 12.03 hrs, Volume= 486 cf, Depth= 1.92"

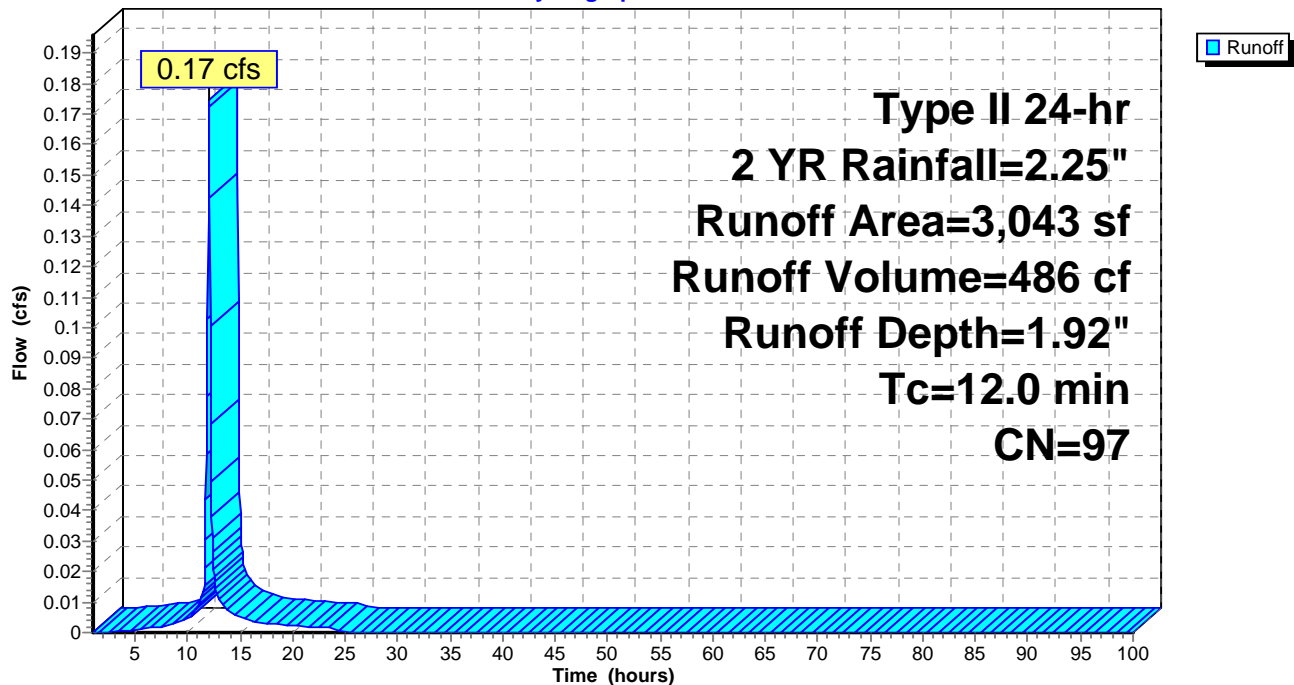
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
134	80	>75% Grass cover, Good, HSG D
2,909	98	Paved parking, HSG D
3,043	97	Weighted Average
134		4.40% Pervious Area
2,909		95.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 14: Area 14**

Hydrograph



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Type II 24-hr 2 YR Rainfall=2.25"

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**Summary for Subcatchment 14A: Area 14A**

Runoff = 0.07 cfs @ 12.03 hrs, Volume= 206 cf, Depth= 2.02"

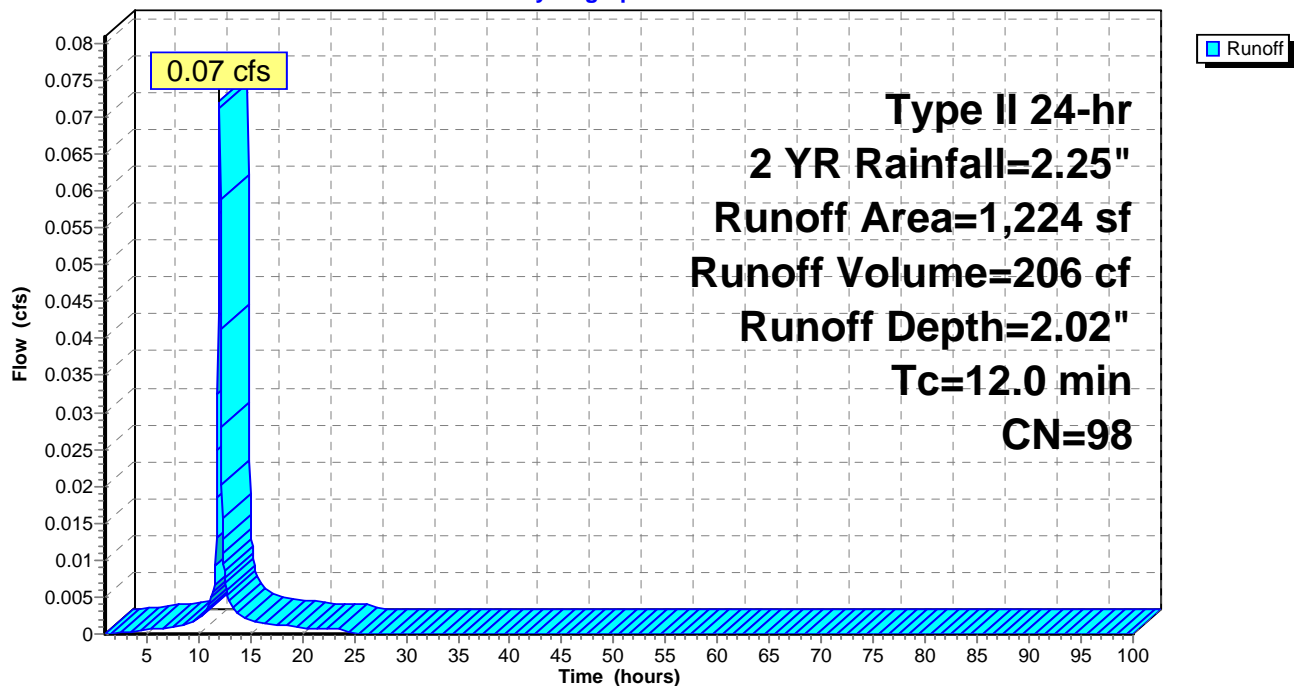
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
1,224	98	Paved parking, HSG D
1,224		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 14A: Area 14A**

Hydrograph





**Summary for Subcatchment 16A: Area 16a**

Runoff = 0.47 cfs @ 12.03 hrs, Volume= 1,340 cf, Depth= 2.02"

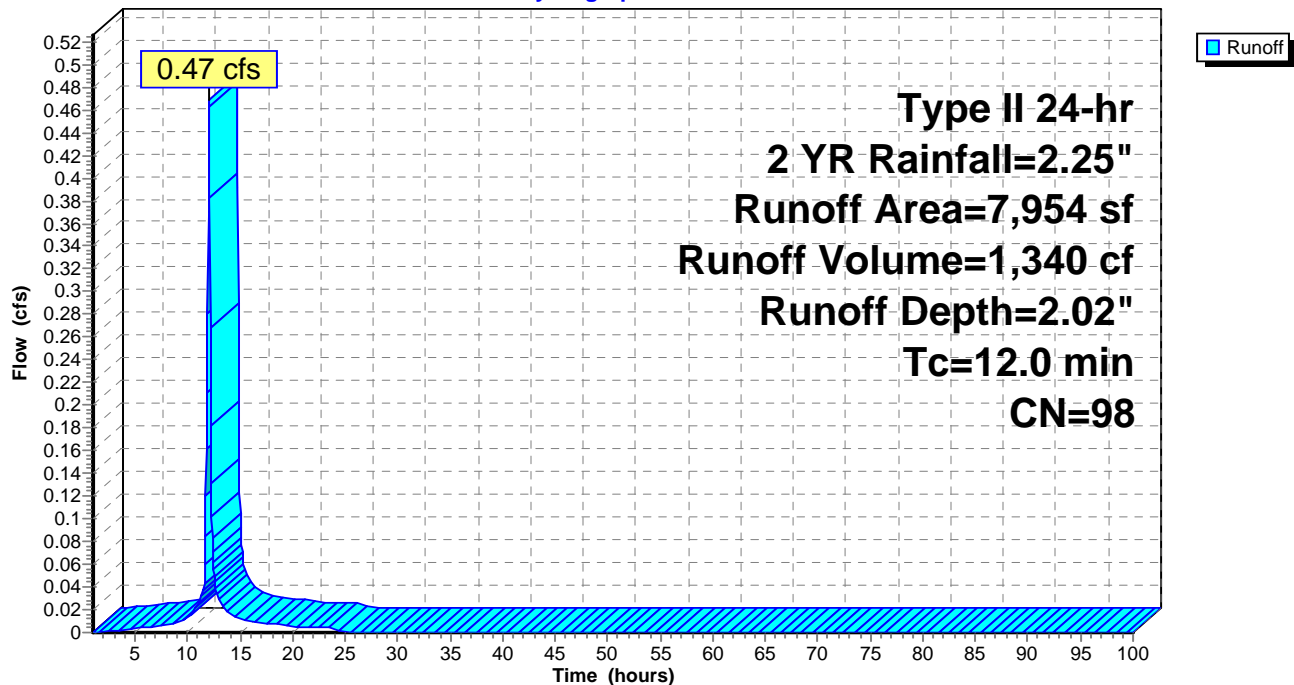
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
47	80	>75% Grass cover, Good, HSG D
7,907	98	Paved parking, HSG D
7,954	98	Weighted Average
47		0.59% Pervious Area
7,907		99.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 16A: Area 16a**

Hydrograph



### Summary for Subcatchment 19A: Area 19A

Runoff = 0.50 cfs @ 12.03 hrs, Volume= 1,440 cf, Depth= 2.02"

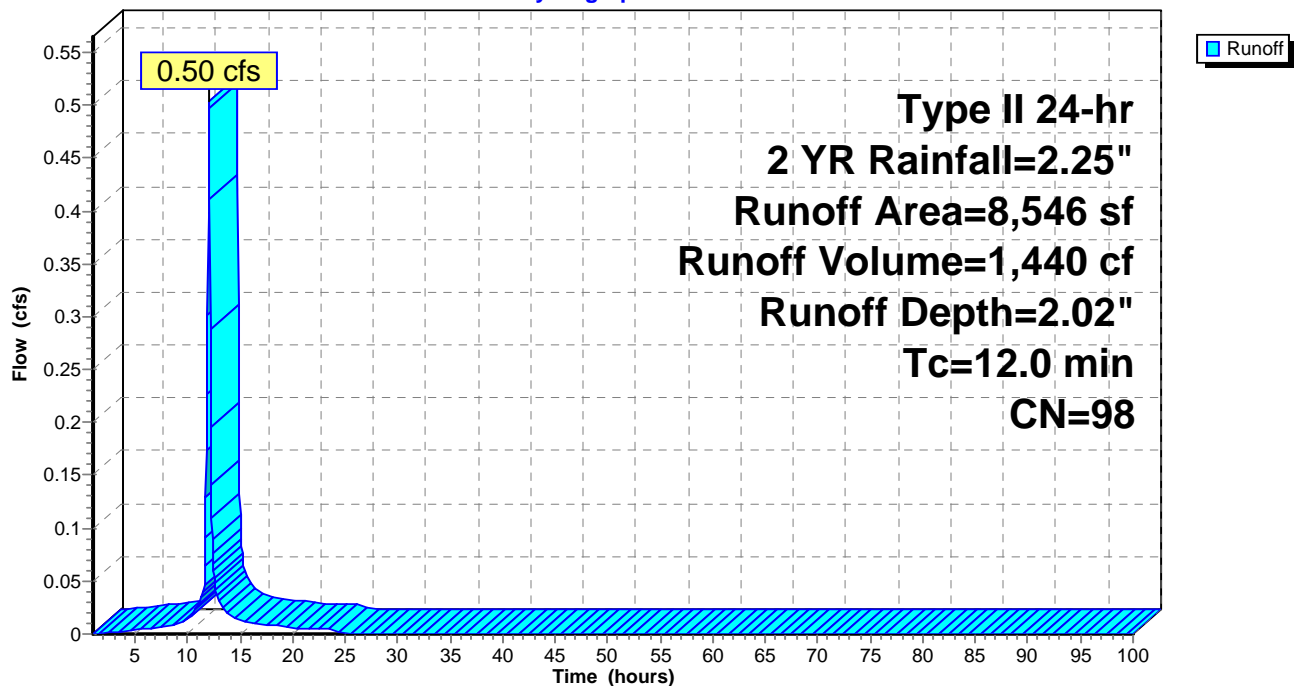
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
8,546	98	Paved parking, HSG D
8,546		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

### Subcatchment 19A: Area 19A

Hydrograph



**Summary for Pond 11P: Planter PB-3B**

Inflow Area = 4,155 sf, 97.18% Impervious, Inflow Depth = 1.92" for 2 YR event  
 Inflow = 0.24 cfs @ 12.03 hrs, Volume= 664 cf  
 Outflow = 0.00 cfs @ 16.45 hrs, Volume= 260 cf, Atten= 98%, Lag= 265.1 min  
 Primary = 0.00 cfs @ 16.45 hrs, Volume= 260 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 615.10' @ 16.45 hrs Surf.Area= 254 sf Storage= 565 cf

Plug-Flow detention time= 2,099.3 min calculated for 259 cf (39% of inflow)  
 Center-of-Mass det. time= 1,966.8 min ( 2,744.5 - 777.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.11'	567 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.11	254	0.0	0	0
613.61	254	40.0	356	356
613.62	254	20.0	1	356
614.94	254	50.0	168	524
615.11	254	100.0	43	567

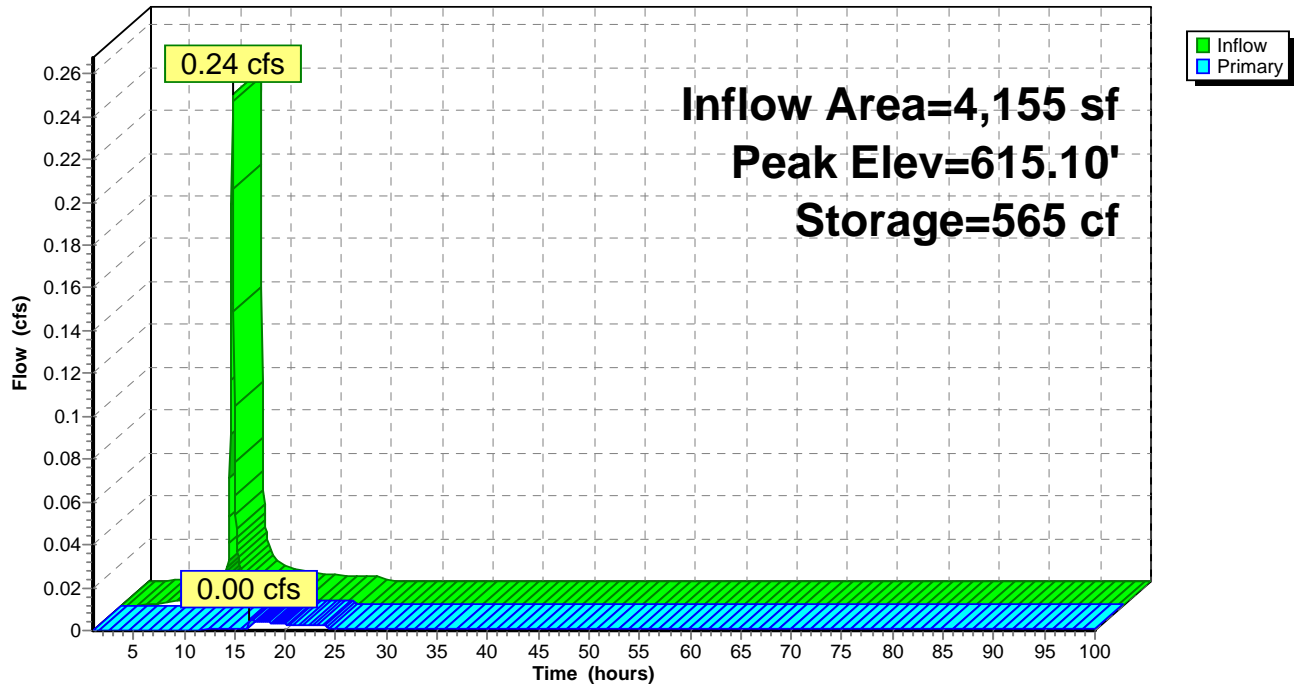
Device	Routing	Invert	Outlet Devices
#1	Primary	612.67'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.67' / 612.60' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.61'	<b>6.0" Round Culvert</b> L= 47.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.61' / 610.61' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.11'	<b>0.100 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.10'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 16.45 hrs HW=615.10' TW=612.19' (Dynamic Tailwater)

1=Culvert (Passes 0.00 cfs of 1.40 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.28 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.00 cfs @ 0.18 fps)

**Pond 11P: Planter PB-3B**

Hydrograph



**Summary for Pond 12P: DS 23**

Inflow Area = 9,150 sf, 98.72% Impervious, Inflow Depth > 1.44" for 2 YR event  
 Inflow = 0.30 cfs @ 12.03 hrs, Volume= 1,101 cf  
 Outflow = 0.30 cfs @ 12.03 hrs, Volume= 1,104 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.30 cfs @ 12.03 hrs, Volume= 1,104 cf

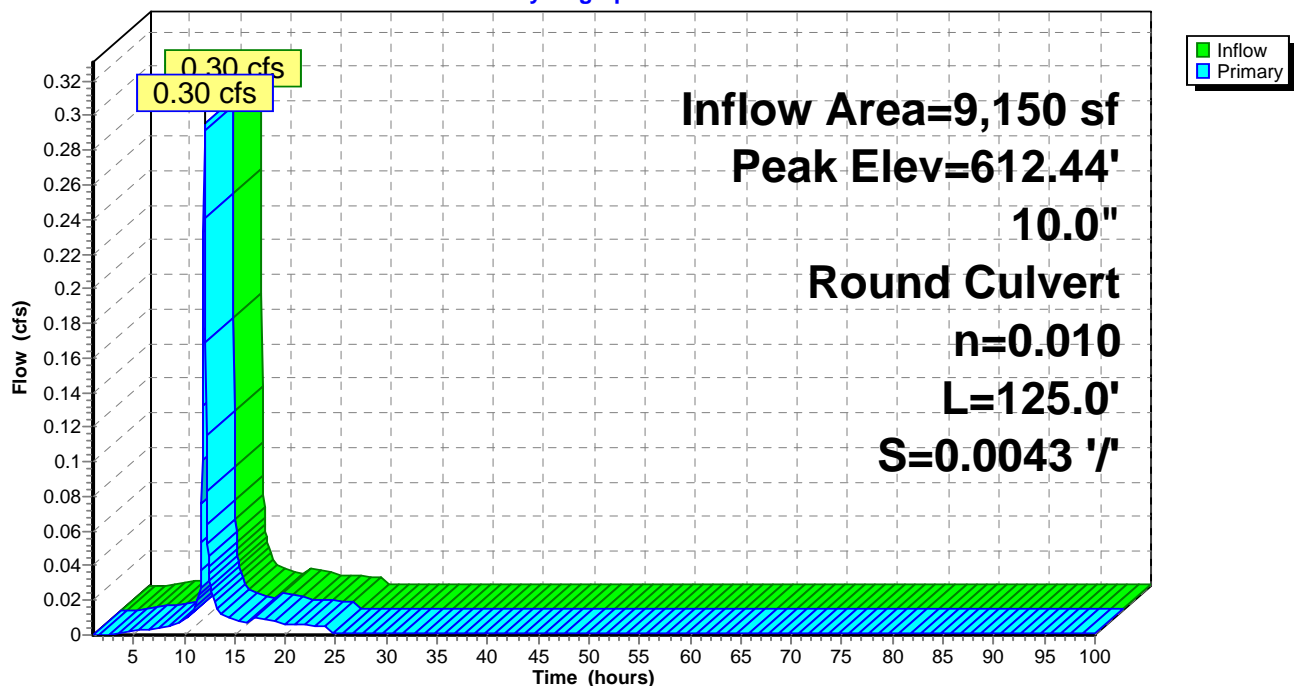
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.44' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.13'	<b>10.0" Round Culvert</b> L= 125.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.13' / 611.59' S= 0.0043 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.29 cfs @ 12.03 hrs HW=612.43' TW=609.85' (Dynamic Tailwater)  
 ↳ **1=Culvert** (Barrel Controls 0.29 cfs @ 2.39 fps)

**Pond 12P: DS 23****Hydrograph**

**Summary for Pond 15P: DS #2107**

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth > 1.80" for 2 YR event  
 Inflow = 1.76 cfs @ 12.04 hrs, Volume= 5,421 cf  
 Outflow = 1.76 cfs @ 12.04 hrs, Volume= 5,423 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.76 cfs @ 12.04 hrs, Volume= 5,423 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.60' @ 12.04 hrs

Flood Elev= 647.22'

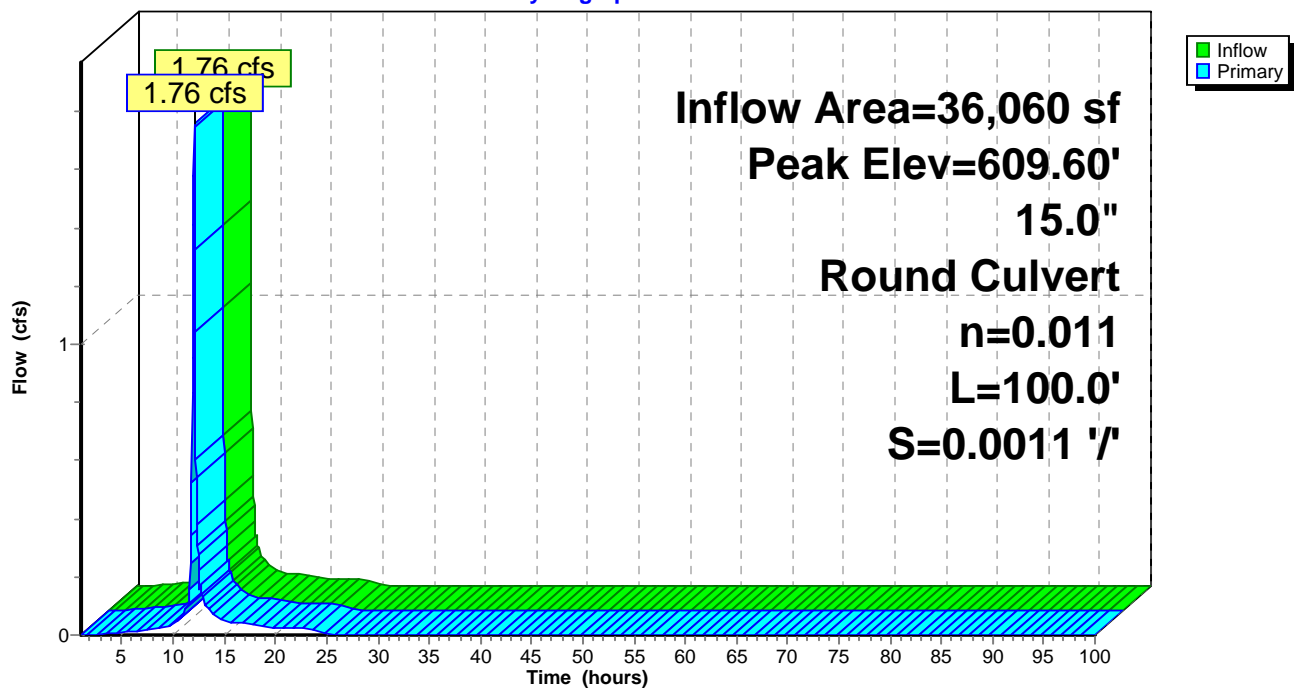
Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>15.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

**Primary OutFlow** Max=1.71 cfs @ 12.04 hrs HW=609.59' (Free Discharge)

1=Culvert (Barrel Controls 1.71 cfs @ 2.61 fps)

**Pond 15P: DS #2107**

Hydrograph



**Summary for Pond DS 24: Planter PB-5B**

[93] Warning: Storage range exceeded by 0.05'

[90] Warning: Qout&gt;Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=8)

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 2.02" for 2 YR event  
 Inflow = 0.36 cfs @ 12.03 hrs, Volume= 1,035 cf  
 Outflow = 0.42 cfs @ 12.05 hrs, Volume= 924 cf, Atten= 0%, Lag= 0.9 min  
 Primary = 0.42 cfs @ 12.05 hrs, Volume= 924 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 614.19' @ 12.05 hrs Surf.Area= 114 sf Storage= 254 cf

Plug-Flow detention time= 353.9 min calculated for 924 cf (89% of inflow)  
 Center-of-Mass det. time= 298.8 min ( 1,065.1 - 766.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	609.14'	254 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
609.14	114	0.0	0	0
612.64	114	40.0	160	160
612.65	114	20.0	0	160
613.97	114	50.0	75	235
614.14	114	100.0	19	254

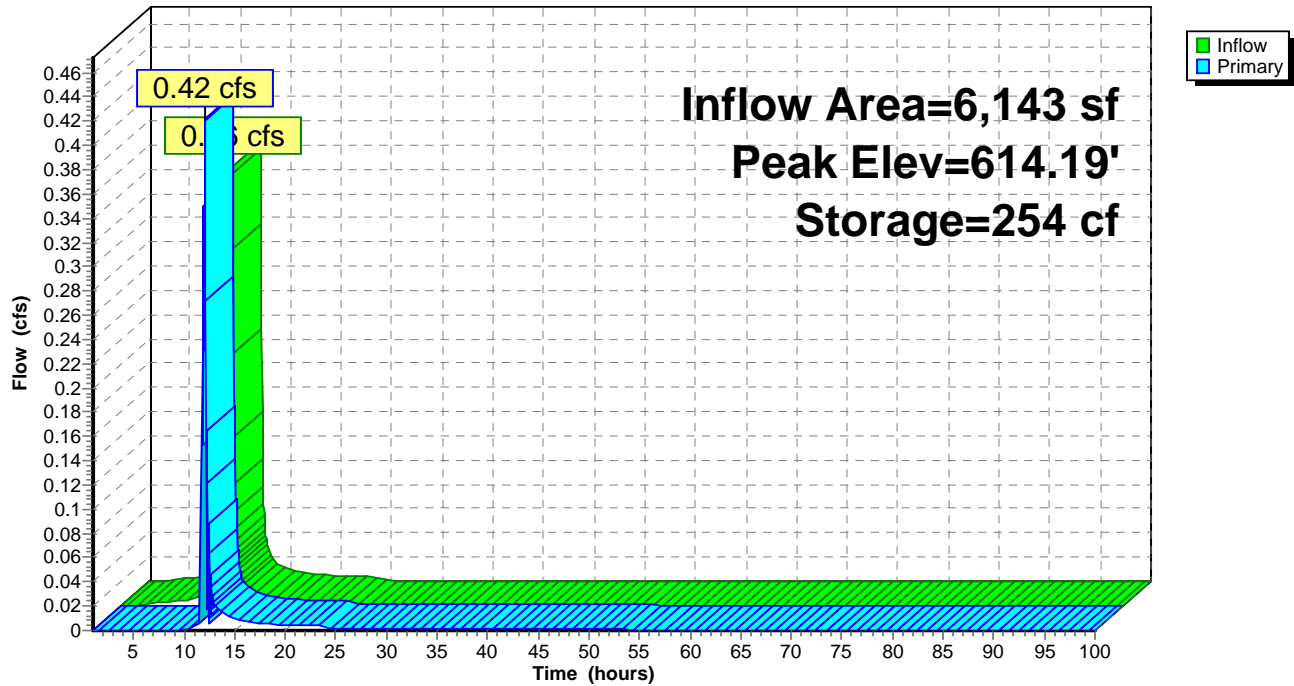
Device	Routing	Invert	Outlet Devices
#1	Primary	611.57'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.57' / 611.50' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.64'	<b>6.0" Round Culvert</b> L= 35.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 609.64' / 609.64' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	609.14'	<b>0.500 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.13'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.41 cfs @ 12.05 hrs HW=614.19' TW=610.82' (Dynamic Tailwater)

1=Culvert (Passes 0.41 cfs of 1.46 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.44 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.41 cfs @ 0.82 fps)

## Pond DS 24: Planter PB-5B

Hydrograph





**Summary for Pond DS 25: DS 25**

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 1.81" for 2 YR event  
 Inflow = 0.42 cfs @ 12.05 hrs, Volume= 924 cf  
 Outflow = 0.42 cfs @ 12.05 hrs, Volume= 926 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.42 cfs @ 12.05 hrs, Volume= 926 cf

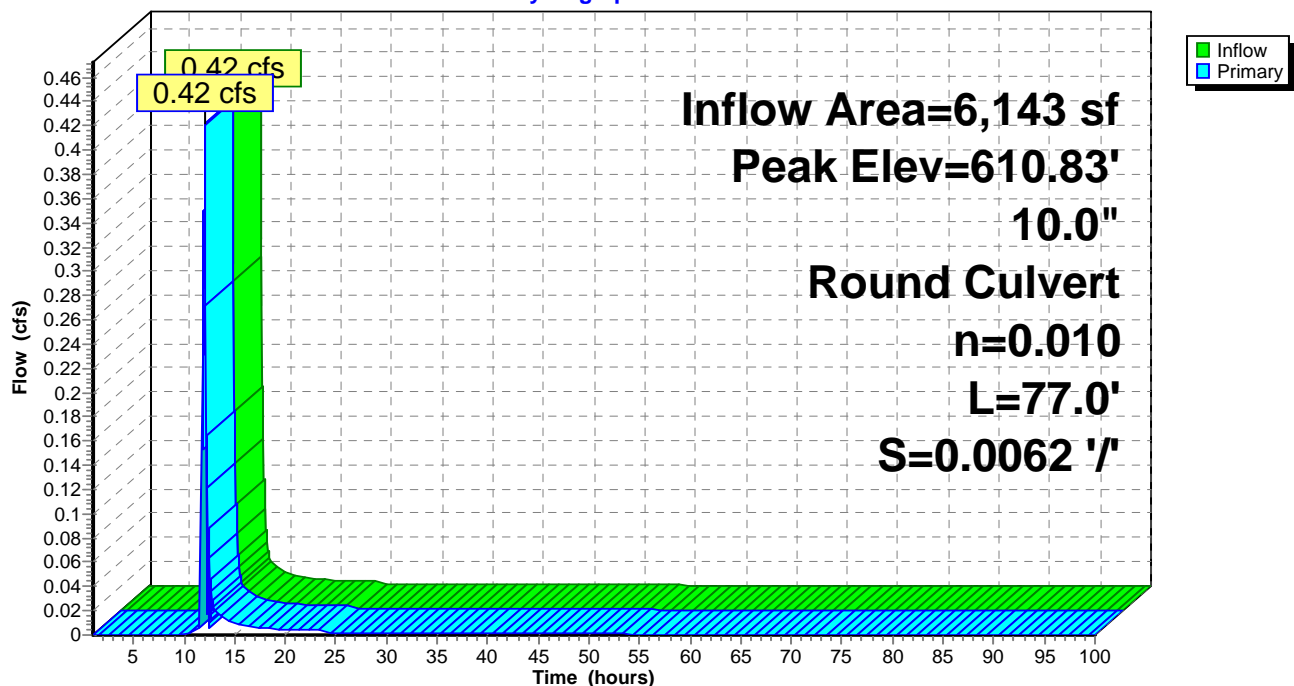
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.83' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	610.48'	<b>10.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 610.48' / 610.00' S= 0.0062 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.41 cfs @ 12.05 hrs HW=610.82' TW=609.87' (Dynamic Tailwater)  
 1=Culvert (Barrel Controls 0.41 cfs @ 2.86 fps)

**Pond DS 25: DS 25****Hydrograph**

**Summary for Pond DS 31: Planter PB-6B**

[93] Warning: Storage range exceeded by 0.01'

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=1)

Inflow Area = 3,043 sf, 95.60% Impervious, Inflow Depth = 1.92" for 2 YR event  
 Inflow = 0.17 cfs @ 12.03 hrs, Volume= 486 cf  
 Outflow = 0.07 cfs @ 12.30 hrs, Volume= 400 cf, Atten= 59%, Lag= 16.2 min  
 Primary = 0.07 cfs @ 12.30 hrs, Volume= 400 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 613.76' @ 12.30 hrs Surf.Area= 133 sf Storage= 297 cf

Plug-Flow detention time= 1,494.4 min calculated for 400 cf (82% of inflow)  
 Center-of-Mass det. time= 1,421.1 min ( 2,198.8 - 777.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	608.75'	297 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.75	133	0.0	0	0
612.25	133	40.0	186	186
612.26	133	20.0	0	186
613.58	133	50.0	88	274
613.75	133	100.0	23	297

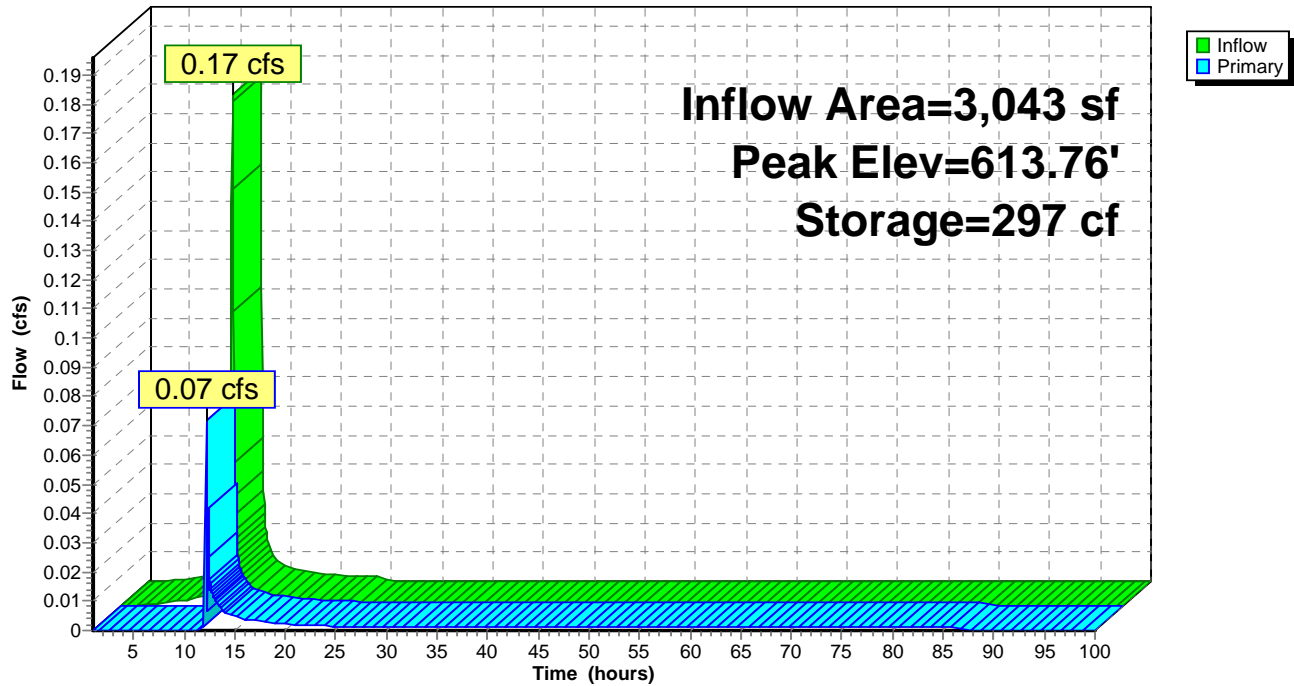
Device	Routing	Invert	Outlet Devices
#1	Primary	610.37'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.37' / 610.31' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.25'	<b>6.0" Round Culvert</b> L= 42.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.25' / 609.25' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.75'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.74'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.07 cfs @ 12.30 hrs HW=613.76' TW=609.23' (Dynamic Tailwater)

1=Culvert (Passes 0.07 cfs of 1.68 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.56 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.07 cfs @ 0.45 fps)

Pond DS 31: Planter PB-6B

Hydrograph



**Summary for Pond DS 32: DS 32**

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth > 1.80" for 2 YR event  
 Inflow = 1.76 cfs @ 12.04 hrs, Volume= 5,416 cf  
 Outflow = 1.76 cfs @ 12.04 hrs, Volume= 5,421 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.76 cfs @ 12.04 hrs, Volume= 5,421 cf

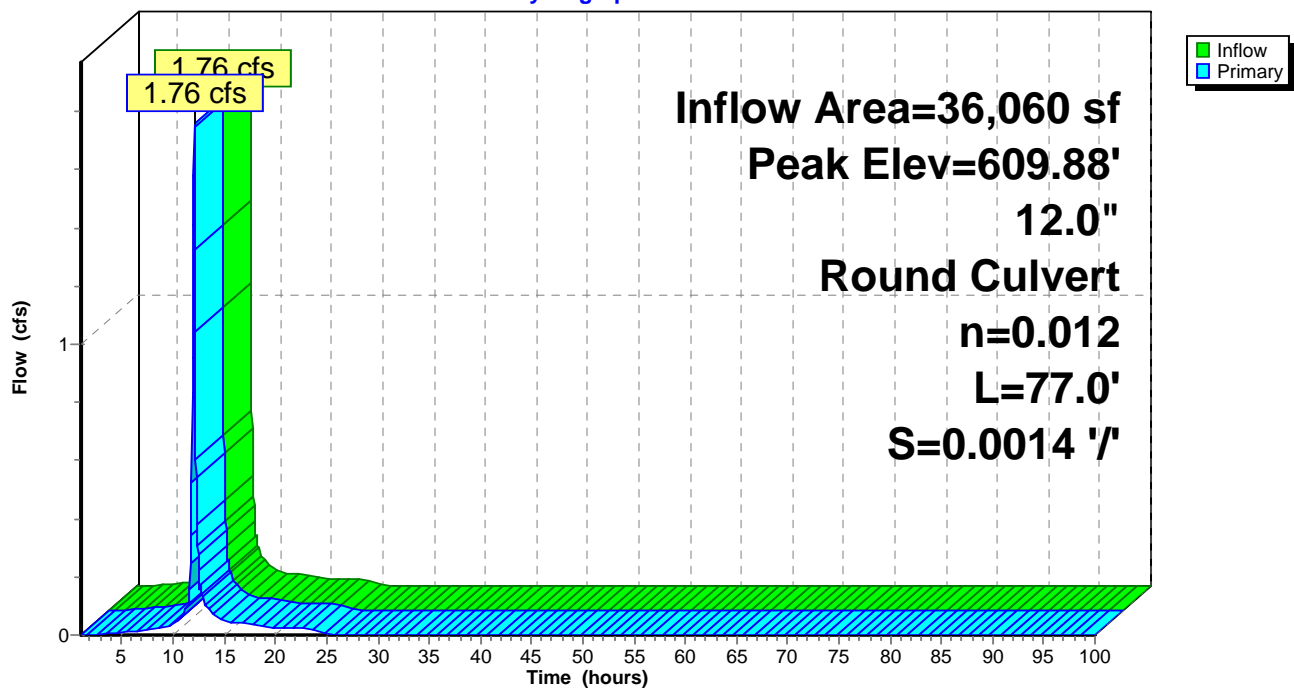
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.88' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.71 cfs @ 12.04 hrs HW=609.88' TW=609.59' (Dynamic Tailwater)  
 ↳ **1=Culvert** (Outlet Controls 1.71 cfs @ 2.38 fps)

**Pond DS 32: DS 32****Hydrograph**

**Genesee St Final**

Prepared by Microsoft

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*Type II 24-hr 25 Year Rainfall=4.00"*

Printed 5/4/2015

Page 24

Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 10: Area 10</b>	Runoff Area=4,155 sf 97.18% Impervious Runoff Depth=3.65" Tc=12.0 min CN=97 Runoff=0.44 cfs 1,264 cf
<b>Subcatchment 10A: Area 10A</b>	Runoff Area=4,995 sf 100.00% Impervious Runoff Depth=3.77" Tc=12.0 min CN=98 Runoff=0.53 cfs 1,567 cf
<b>Subcatchment 13: Area 13</b>	Runoff Area=6,143 sf 98.68% Impervious Runoff Depth=3.77" Tc=12.0 min CN=98 Runoff=0.66 cfs 1,927 cf
<b>Subcatchment 14: Area 14</b>	Runoff Area=3,043 sf 95.60% Impervious Runoff Depth=3.65" Tc=12.0 min CN=97 Runoff=0.32 cfs 926 cf
<b>Subcatchment 14A: Area 14A</b>	Runoff Area=1,224 sf 100.00% Impervious Runoff Depth=3.77" Tc=12.0 min CN=98 Runoff=0.13 cfs 384 cf
<b>Subcatchment 16A: Area 16a</b>	Runoff Area=7,954 sf 99.41% Impervious Runoff Depth=3.77" Tc=12.0 min CN=98 Runoff=0.85 cfs 2,496 cf
<b>Subcatchment 19A: Area 19A</b>	Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=3.77" Tc=12.0 min CN=98 Runoff=0.91 cfs 2,681 cf
<b>Pond 11P: Planter PB-3B</b>	Peak Elev=615.17' Storage=567 cf Inflow=0.44 cfs 1,264 cf Outflow=0.50 cfs 860 cf
<b>Pond 12P: DS 23</b>	Peak Elev=612.75' Inflow=1.02 cfs 2,427 cf 10.0" Round Culvert n=0.010 L=125.0' S=0.0043 ' Outflow=1.02 cfs 2,429 cf
<b>Pond 15P: DS #2107</b>	Peak Elev=610.26' Inflow=3.98 cfs 10,653 cf 15.0" Round Culvert n=0.011 L=100.0' S=0.0011 ' Outflow=3.98 cfs 10,655 cf
<b>Pond DS 24: Planter PB-5B</b>	Peak Elev=614.22' Storage=254 cf Inflow=0.66 cfs 1,927 cf Outflow=0.66 cfs 1,817 cf
<b>Pond DS 25: DS 25</b>	Peak Elev=611.75' Inflow=0.66 cfs 1,817 cf 10.0" Round Culvert n=0.010 L=77.0' S=0.0062 ' Outflow=0.66 cfs 1,818 cf
<b>Pond DS 31: Planter PB-6B</b>	Peak Elev=613.81' Storage=297 cf Inflow=0.32 cfs 926 cf Outflow=0.46 cfs 840 cf
<b>Pond DS 32: DS 32</b>	Peak Elev=611.68' Inflow=3.98 cfs 10,648 cf 12.0" Round Culvert n=0.012 L=77.0' S=0.0014 ' Outflow=3.98 cfs 10,653 cf
<b>Total Runoff Area = 36,060 sf Runoff Volume = 11,246 cf Average Runoff Depth = 3.74"</b>	
<b>1.05% Pervious = 379 sf 98.95% Impervious = 35,681 sf</b>	

**Summary for Subcatchment 10: Area 10**

Runoff = 0.44 cfs @ 12.03 hrs, Volume= 1,264 cf, Depth= 3.65"

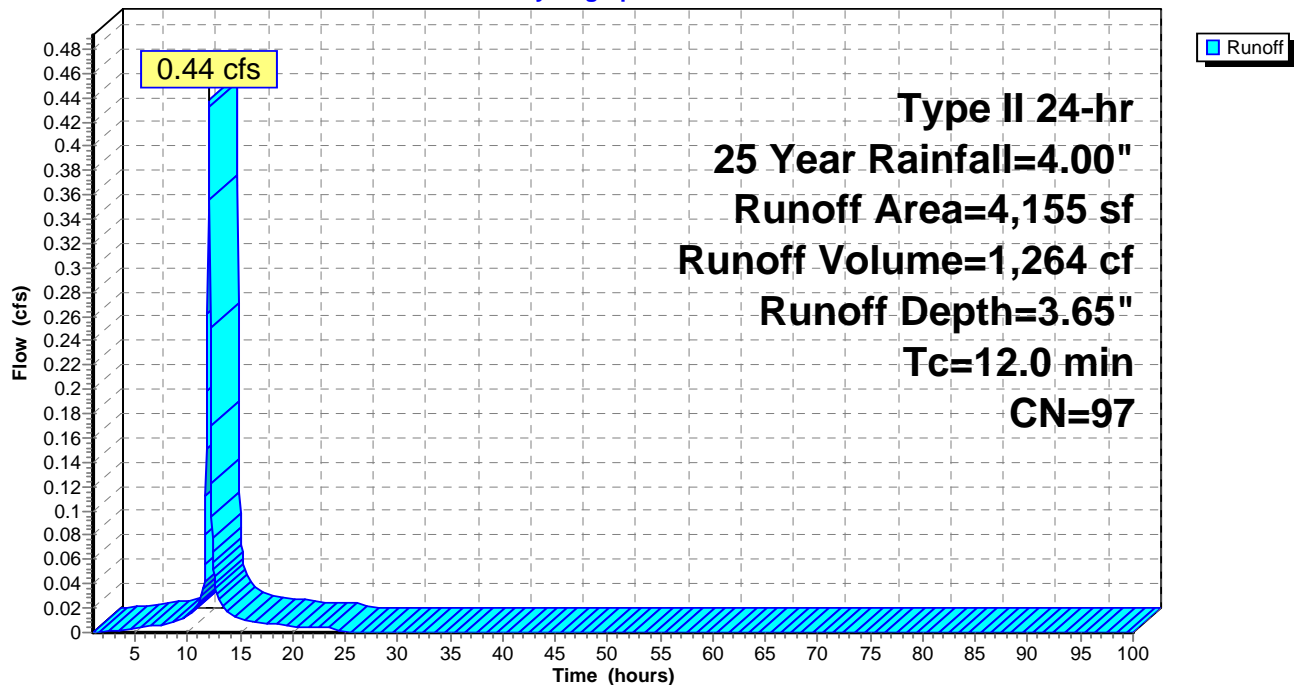
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
117	80	>75% Grass cover, Good, HSG D
4,038	98	Paved parking, HSG D
4,155	97	Weighted Average
117		2.82% Pervious Area
4,038		97.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 10: Area 10**

Hydrograph



**Summary for Subcatchment 10A: Area 10A**

Runoff = 0.53 cfs @ 12.03 hrs, Volume= 1,567 cf, Depth= 3.77"

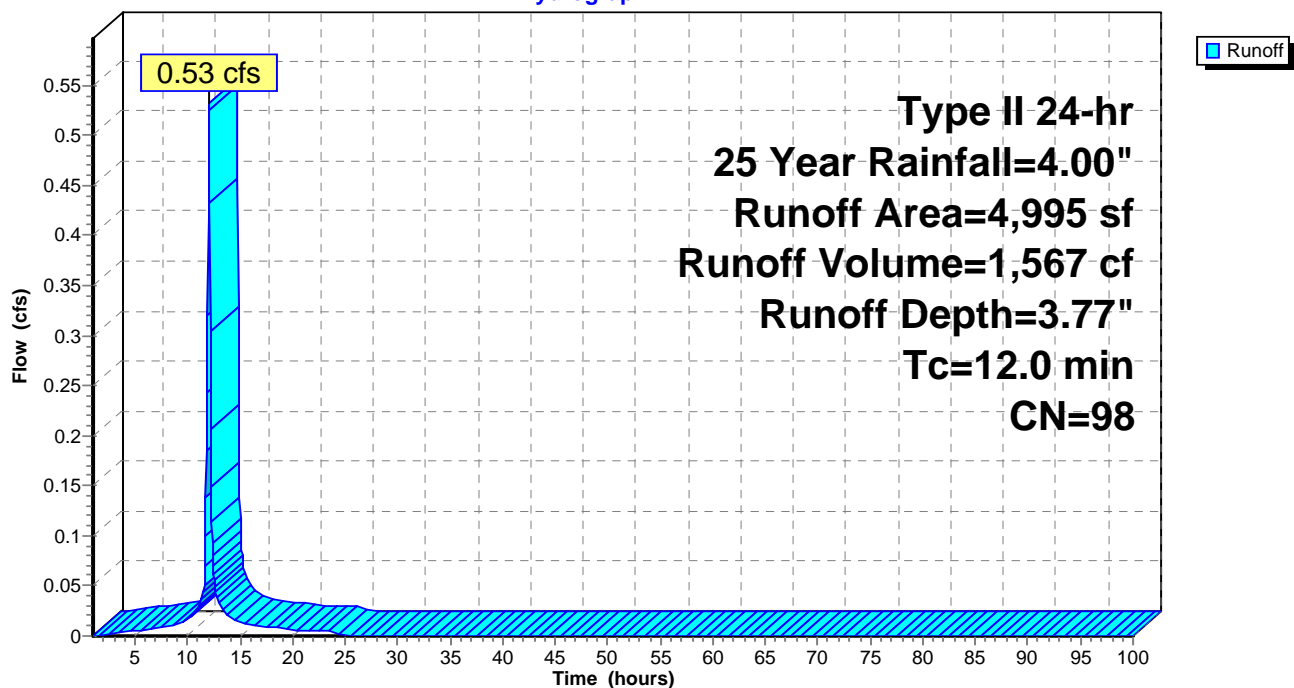
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
4,995	98	Paved parking, HSG D
4,995		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 10A: Area 10A**

Hydrograph



**Summary for Subcatchment 13: Area 13**

Runoff = 0.66 cfs @ 12.03 hrs, Volume= 1,927 cf, Depth= 3.77"

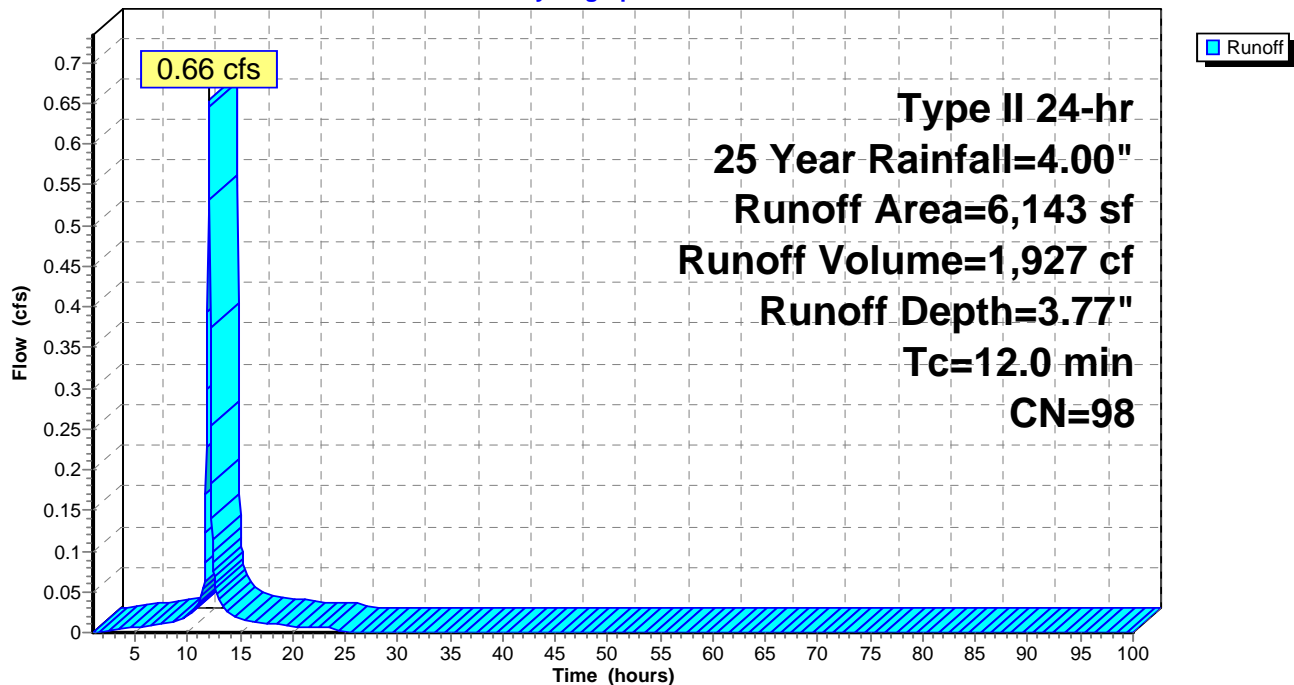
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
81	80	>75% Grass cover, Good, HSG D
6,062	98	Paved parking, HSG D
6,143	98	Weighted Average
81		1.32% Pervious Area
6,062		98.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 13: Area 13**

Hydrograph





**Summary for Subcatchment 14: Area 14**

Runoff = 0.32 cfs @ 12.03 hrs, Volume= 926 cf, Depth= 3.65"

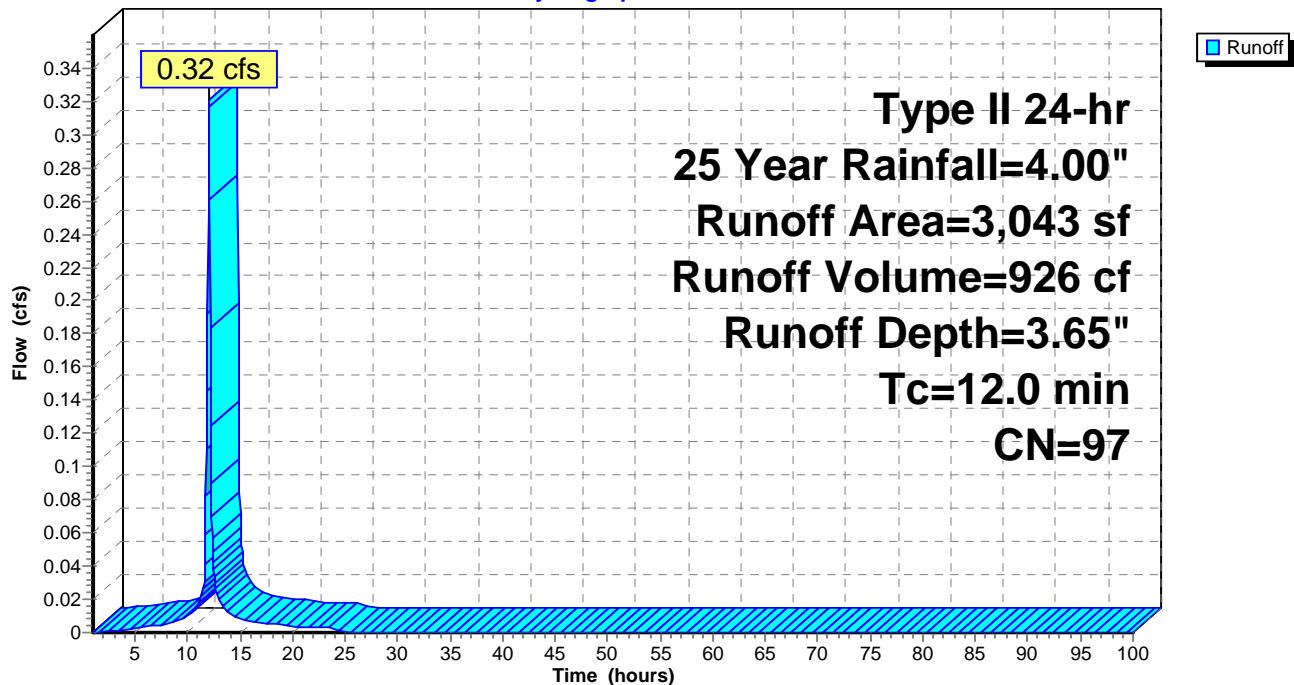
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
134	80	>75% Grass cover, Good, HSG D
2,909	98	Paved parking, HSG D
3,043	97	Weighted Average
134		4.40% Pervious Area
2,909		95.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 14: Area 14**

Hydrograph



**Summary for Subcatchment 14A: Area 14A**

Runoff = 0.13 cfs @ 12.03 hrs, Volume= 384 cf, Depth= 3.77"

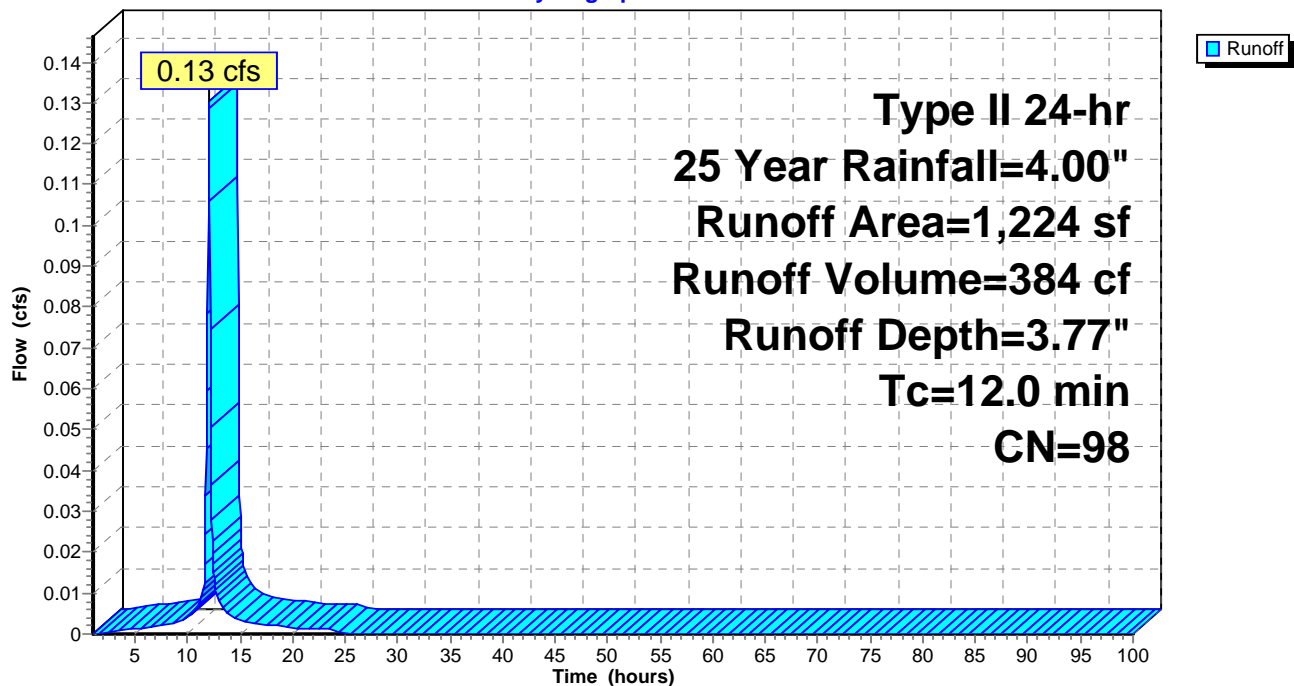
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
1,224	98	Paved parking, HSG D
1,224		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 14A: Area 14A**

Hydrograph



**Summary for Subcatchment 16A: Area 16a**

Runoff = 0.85 cfs @ 12.03 hrs, Volume= 2,496 cf, Depth= 3.77"

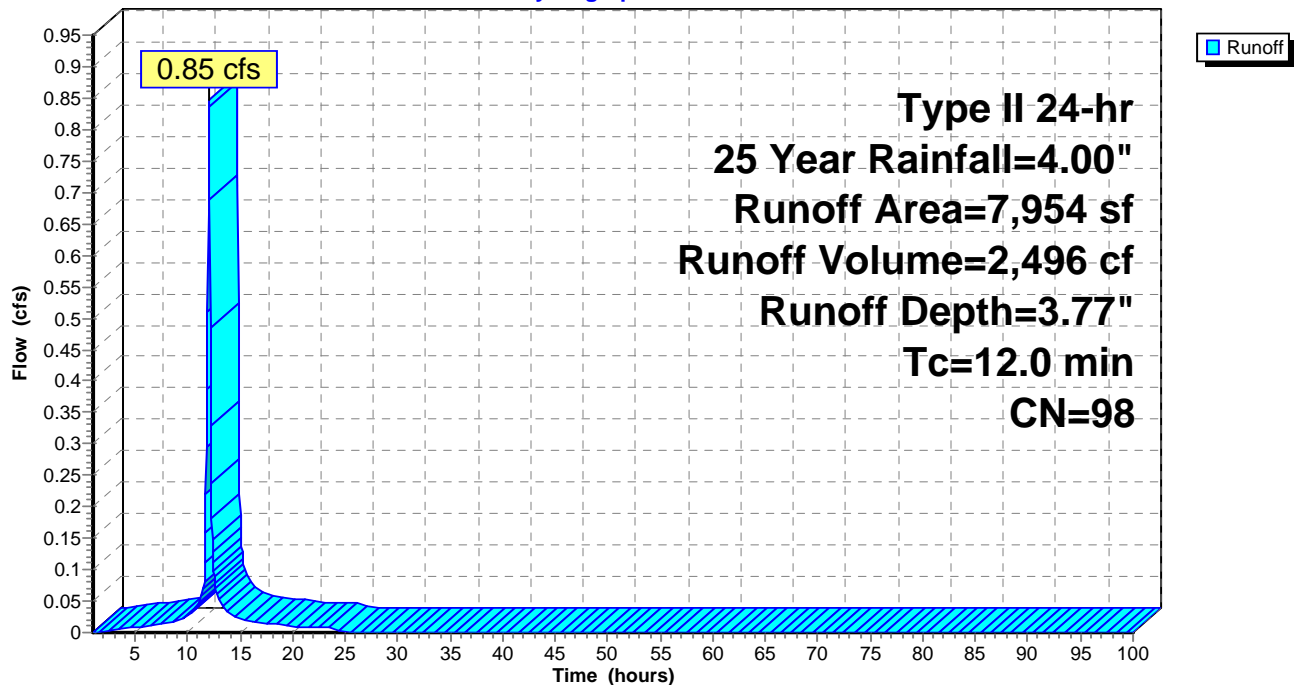
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
47	80	>75% Grass cover, Good, HSG D
7,907	98	Paved parking, HSG D
7,954	98	Weighted Average
47		0.59% Pervious Area
7,907		99.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 16A: Area 16a**

Hydrograph



**Summary for Subcatchment 19A: Area 19A**

Runoff = 0.91 cfs @ 12.03 hrs, Volume= 2,681 cf, Depth= 3.77"

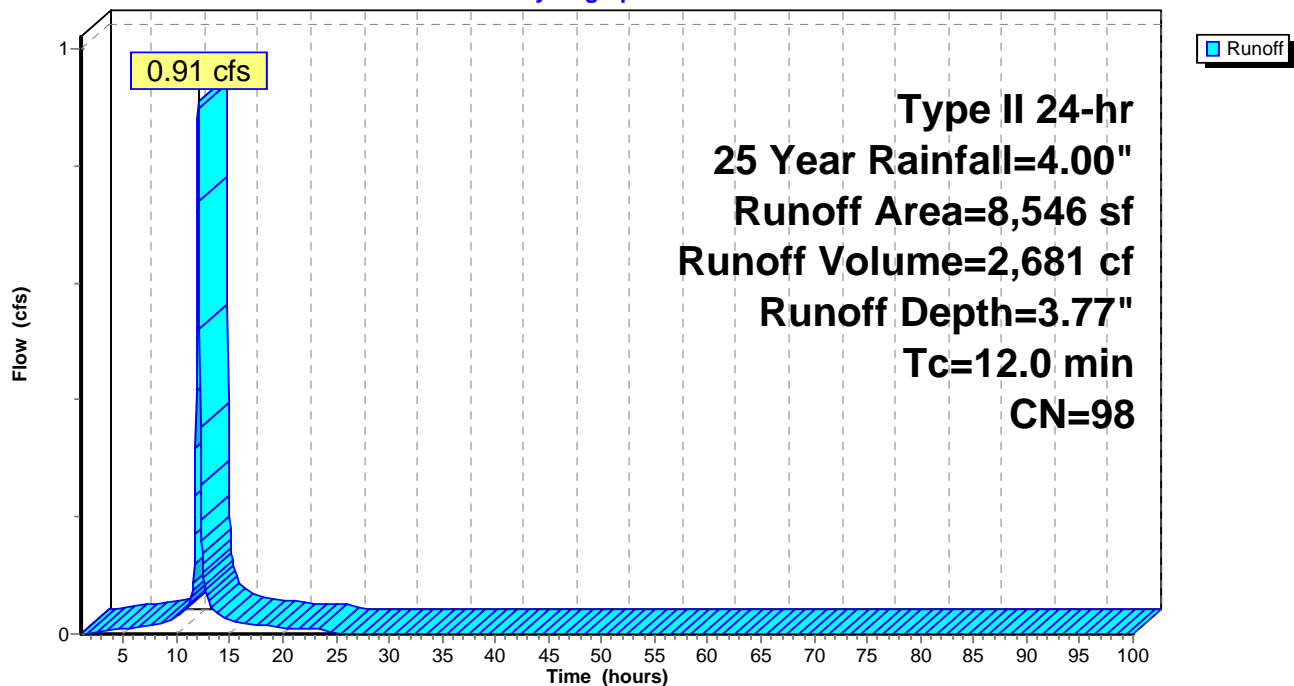
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
8,546	98	Paved parking, HSG D
8,546		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 19A: Area 19A**

Hydrograph



**Summary for Pond 11P: Planter PB-3B**

[93] Warning: Storage range exceeded by 0.06'

[90] Warning: Qout&gt;Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=7)

Inflow Area = 4,155 sf, 97.18% Impervious, Inflow Depth = 3.65" for 25 Year event  
 Inflow = 0.44 cfs @ 12.03 hrs, Volume= 1,264 cf  
 Outflow = 0.50 cfs @ 12.06 hrs, Volume= 860 cf, Atten= 0%, Lag= 1.8 min  
 Primary = 0.50 cfs @ 12.06 hrs, Volume= 860 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 615.17' @ 12.05 hrs Surf.Area= 254 sf Storage= 567 cf

Plug-Flow detention time= 739.5 min calculated for 860 cf (68% of inflow)  
 Center-of-Mass det. time= 641.1 min ( 1,403.5 - 762.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	610.11'	567 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.11	254	0.0	0	0
613.61	254	40.0	356	356
613.62	254	20.0	1	356
614.94	254	50.0	168	524
615.11	254	100.0	43	567

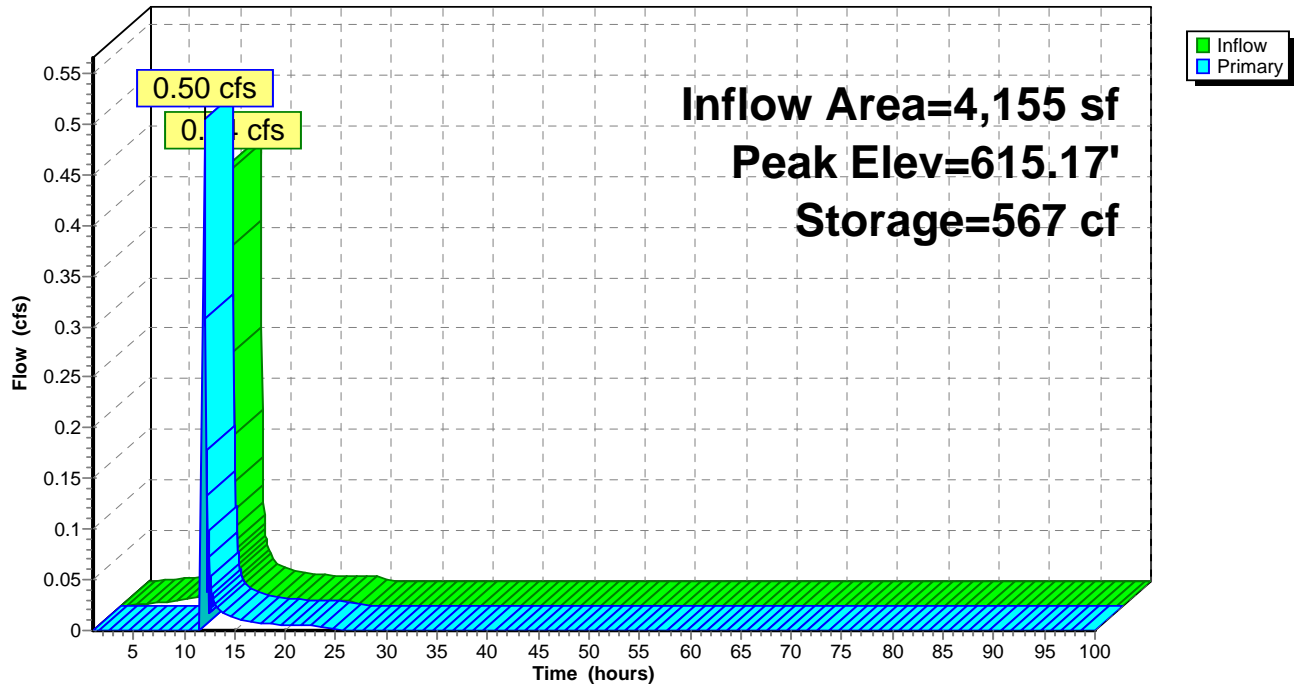
Device	Routing	Invert	Outlet Devices
#1	Primary	612.67'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.67' / 612.60' S= 0.0117 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.61'	<b>6.0" Round Culvert</b> L= 47.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.61' / 610.61' S= 0.0000 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.11'	<b>0.100 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.10'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.44 cfs @ 12.06 hrs HW=615.17' TW=612.72' (Dynamic Tailwater)

1=Culvert (Passes 0.44 cfs of 1.42 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.28 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.44 cfs @ 0.84 fps)

**Pond 11P: Planter PB-3B**

Hydrograph



**Summary for Pond 12P: DS 23**

Inflow Area = 9,150 sf, 98.72% Impervious, Inflow Depth > 3.18" for 25 Year event  
 Inflow = 1.02 cfs @ 12.06 hrs, Volume= 2,427 cf  
 Outflow = 1.02 cfs @ 12.06 hrs, Volume= 2,429 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.02 cfs @ 12.06 hrs, Volume= 2,429 cf

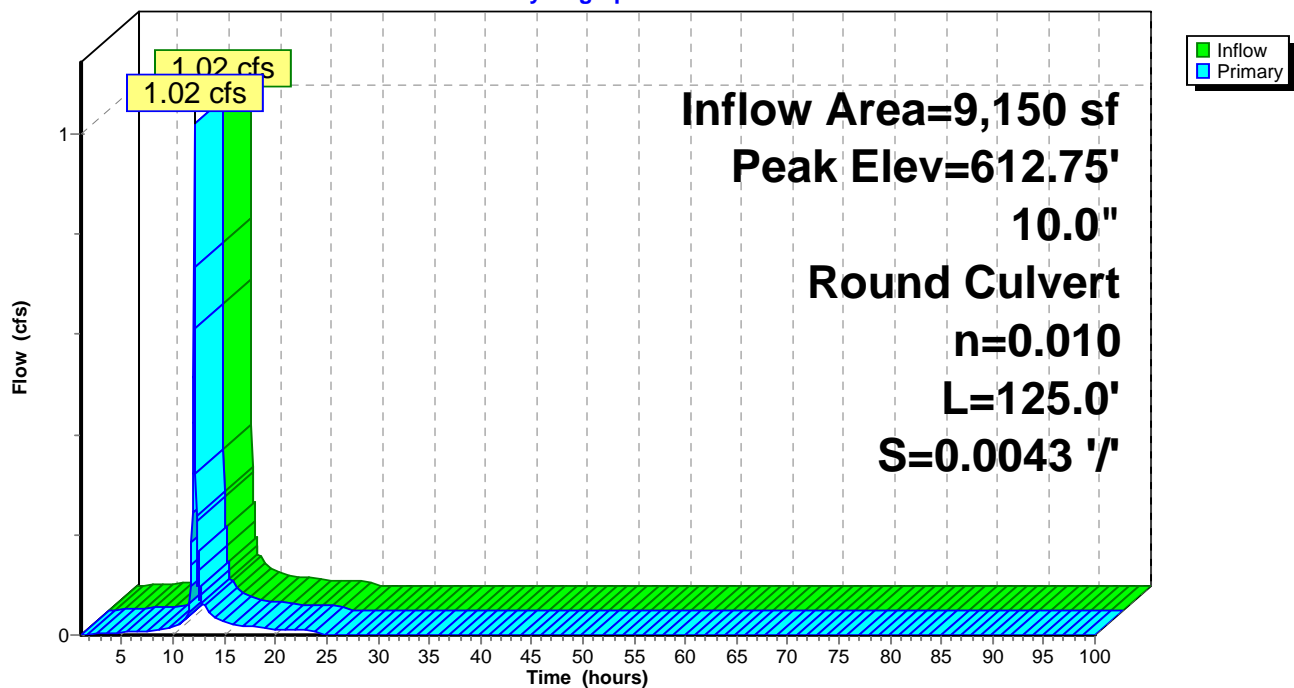
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.75' @ 12.06 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.13'	<b>10.0" Round Culvert</b> L= 125.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.13' / 611.59' S= 0.0043 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.97 cfs @ 12.06 hrs HW=612.73' TW=611.53' (Dynamic Tailwater)  
 ↳ **1=Culvert** (Barrel Controls 0.97 cfs @ 3.23 fps)

**Pond 12P: DS 23****Hydrograph**

**Summary for Pond 15P: DS #2107**

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth > 3.54" for 25 Year event  
 Inflow = 3.98 cfs @ 12.05 hrs, Volume= 10,653 cf  
 Outflow = 3.98 cfs @ 12.05 hrs, Volume= 10,655 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 3.98 cfs @ 12.05 hrs, Volume= 10,655 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.26' @ 12.05 hrs

Flood Elev= 647.22'

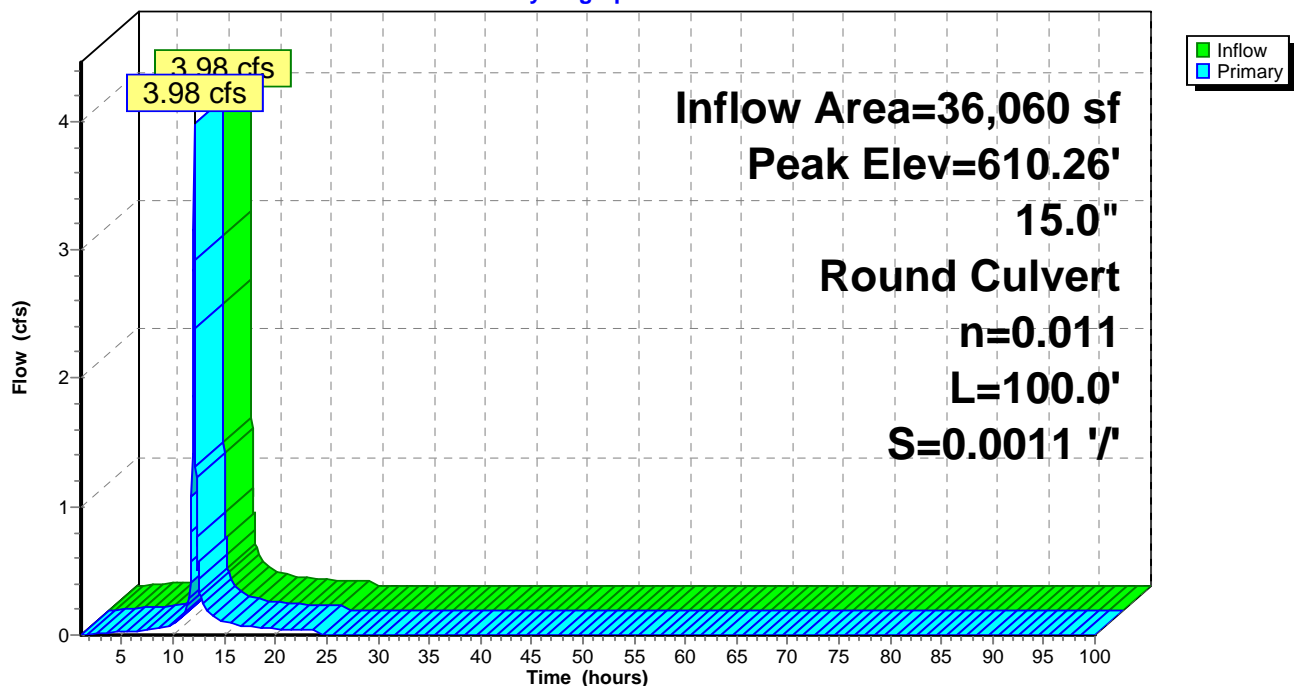
Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>15.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

**Primary OutFlow** Max=3.94 cfs @ 12.05 hrs HW=610.24' (Free Discharge)

1=Culvert (Barrel Controls 3.94 cfs @ 3.34 fps)

**Pond 15P: DS #2107**

Hydrograph





**Summary for Pond DS 24: Planter PB-5B**

[93] Warning: Storage range exceeded by 0.08'

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 3.77" for 25 Year event  
 Inflow = 0.66 cfs @ 12.03 hrs, Volume= 1,927 cf  
 Outflow = 0.66 cfs @ 12.03 hrs, Volume= 1,817 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.66 cfs @ 12.03 hrs, Volume= 1,817 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 614.22' @ 12.03 hrs Surf.Area= 114 sf Storage= 254 cf

Plug-Flow detention time= 206.4 min calculated for 1,817 cf (94% of inflow)  
 Center-of-Mass det. time= 171.6 min ( 925.2 - 753.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	609.14'	254 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
609.14	114	0.0	0	0
612.64	114	40.0	160	160
612.65	114	20.0	0	160
613.97	114	50.0	75	235
614.14	114	100.0	19	254

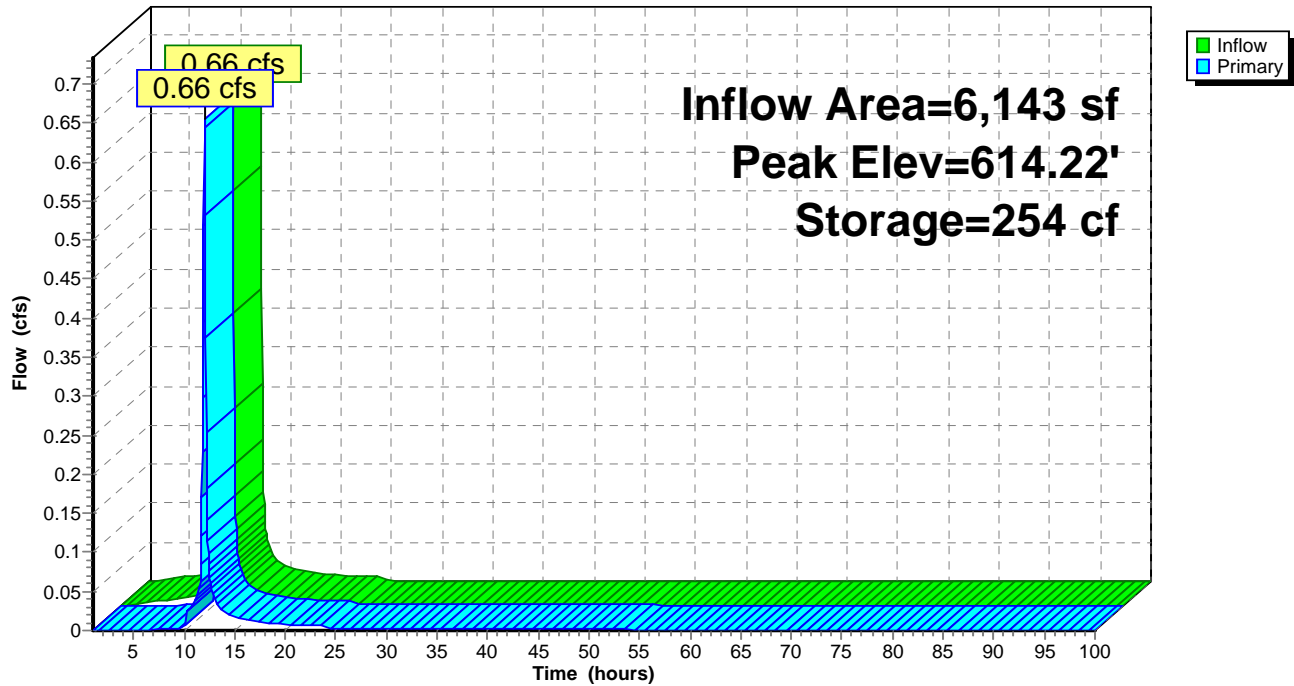
Device	Routing	Invert	Outlet Devices
#1	Primary	611.57'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.57' / 611.50' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.64'	<b>6.0" Round Culvert</b> L= 35.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 609.64' / 609.64' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	609.14'	<b>0.500 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.13'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.64 cfs @ 12.03 hrs HW=614.21' TW=611.48' (Dynamic Tailwater)

- 1=Culvert (Passes 0.64 cfs of 1.46 cfs potential flow)
- 2=Culvert (Passes 0.00 cfs of 1.45 cfs potential flow)
- 3=Exfiltration (Exfiltration Controls 0.00 cfs)
- 4=Orifice/Grate (Weir Controls 0.64 cfs @ 0.95 fps)

Pond DS 24: Planter PB-5B

Hydrograph



**Summary for Pond DS 25: DS 25**

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 3.55" for 25 Year event  
 Inflow = 0.66 cfs @ 12.03 hrs, Volume= 1,817 cf  
 Outflow = 0.66 cfs @ 12.03 hrs, Volume= 1,818 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.66 cfs @ 12.03 hrs, Volume= 1,818 cf

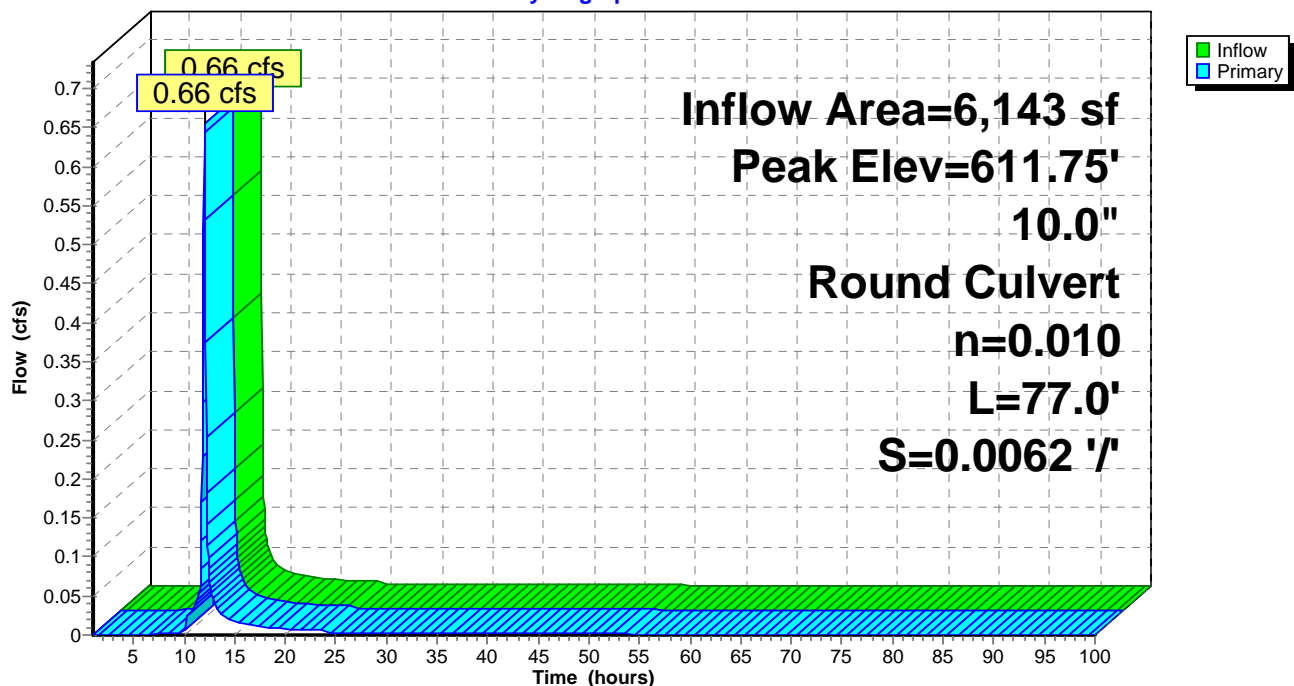
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.75' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	610.48'	<b>10.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 610.48' / 610.00' S= 0.0062 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.88 cfs @ 12.03 hrs HW=611.48' TW=611.35' (Dynamic Tailwater)  
**1=Culvert** (Outlet Controls 0.88 cfs @ 1.69 fps)

**Pond DS 25: DS 25****Hydrograph**

**Summary for Pond DS 31: Planter PB-6B**

[93] Warning: Storage range exceeded by 0.06'

[90] Warning: Qout&gt;Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=6)

Inflow Area = 3,043 sf, 95.60% Impervious, Inflow Depth = 3.65" for 25 Year event  
 Inflow = 0.32 cfs @ 12.03 hrs, Volume= 926 cf  
 Outflow = 0.46 cfs @ 12.05 hrs, Volume= 840 cf, Atten= 0%, Lag= 1.1 min  
 Primary = 0.46 cfs @ 12.05 hrs, Volume= 840 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 613.81' @ 12.05 hrs Surf.Area= 133 sf Storage= 297 cf

Plug-Flow detention time= 750.6 min calculated for 839 cf (91% of inflow)  
 Center-of-Mass det. time= 703.0 min ( 1,465.4 - 762.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	608.75'	297 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

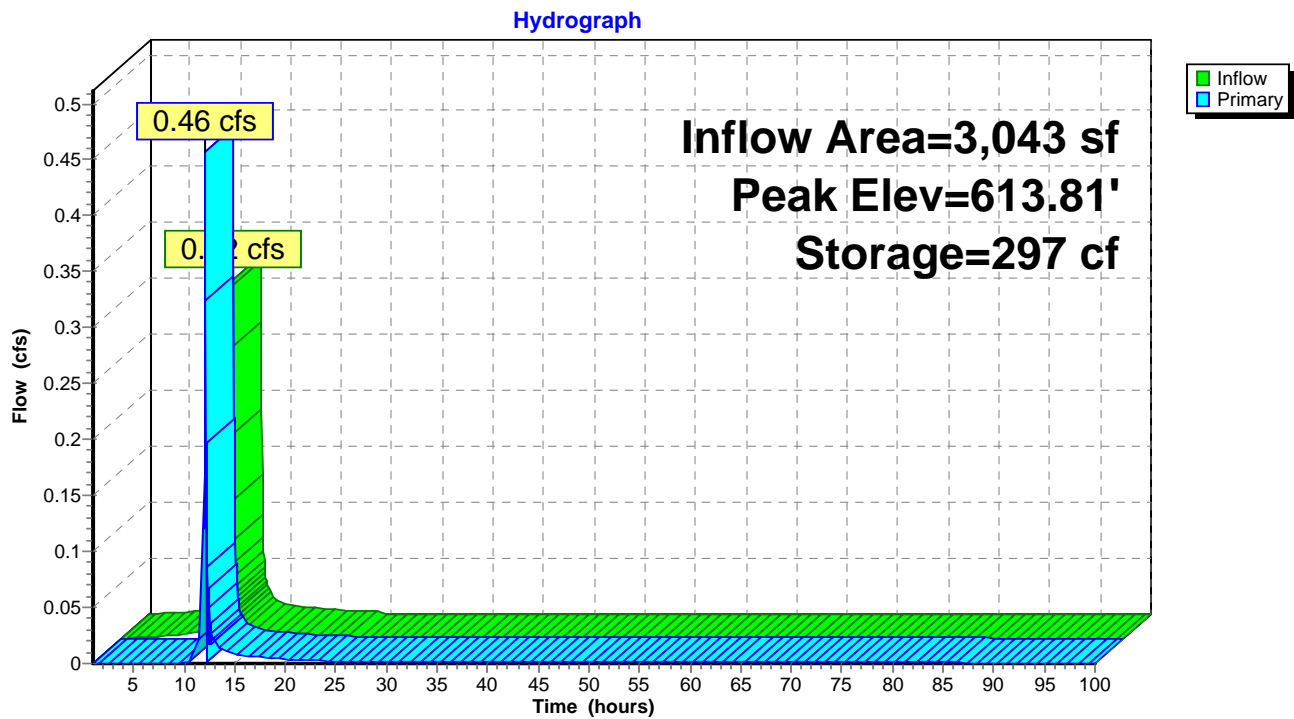
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.75	133	0.0	0	0
612.25	133	40.0	186	186
612.26	133	20.0	0	186
613.58	133	50.0	88	274
613.75	133	100.0	23	297

Device	Routing	Invert	Outlet Devices
#1	Primary	610.37'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.37' / 610.31' S= 0.0120 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.25'	<b>6.0" Round Culvert</b> L= 42.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.25' / 609.25' S= 0.0000 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.75'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.74'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.44 cfs @ 12.05 hrs HW=613.81' TW=611.64' (Dynamic Tailwater)

1=Culvert (Passes 0.44 cfs of 1.39 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.25 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.44 cfs @ 0.84 fps)

## Pond DS 31: Planter PB-6B



**Summary for Pond DS 32: DS 32**

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth > 3.54" for 25 Year event  
 Inflow = 3.98 cfs @ 12.05 hrs, Volume= 10,648 cf  
 Outflow = 3.98 cfs @ 12.05 hrs, Volume= 10,653 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 3.98 cfs @ 12.05 hrs, Volume= 10,653 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 611.68' @ 12.05 hrs

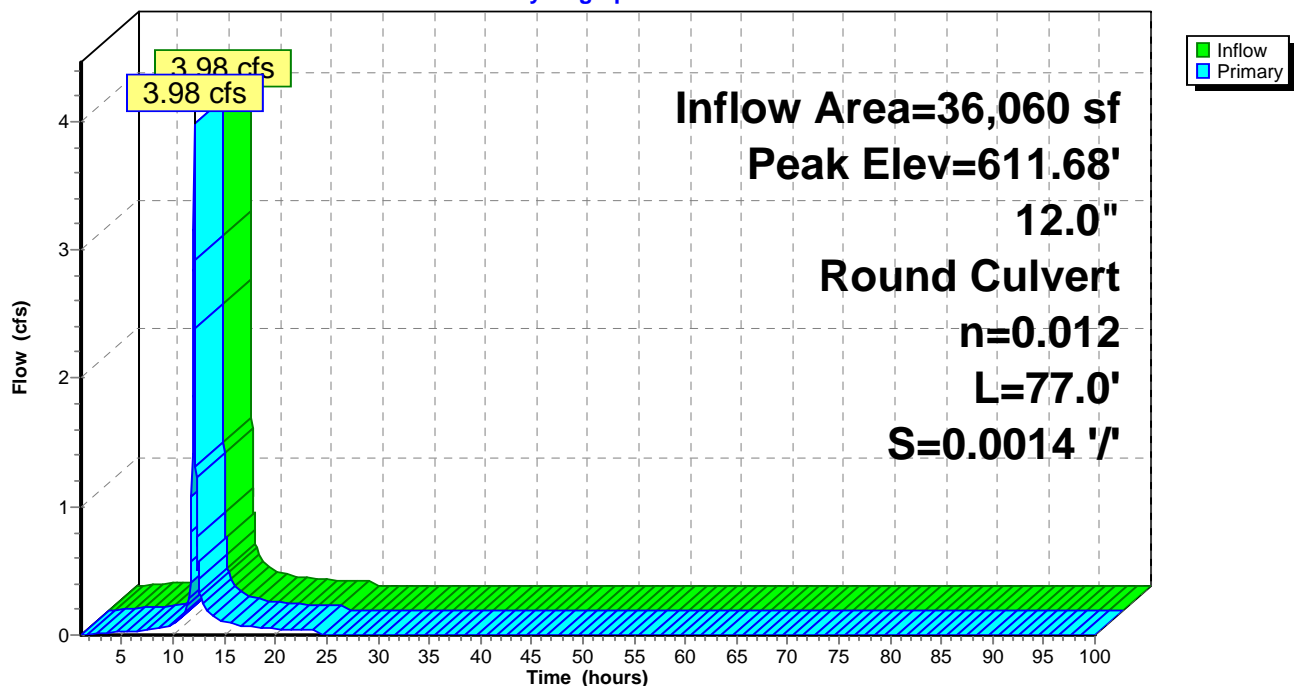
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.93 cfs @ 12.05 hrs HW=611.63' TW=610.24' (Dynamic Tailwater)  
 1=Culvert (Outlet Controls 3.93 cfs @ 5.01 fps)

**Pond DS 32: DS 32**

Hydrograph



**Genesee St Final**

Prepared by Microsoft

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*Type II 24-hr 50% Rainfall=0.35"*

Printed 5/4/2015

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 10: Area 10</b>	Runoff Area=4,155 sf 97.18% Impervious Runoff Depth=0.14" Tc=12.0 min CN=97 Runoff=0.02 cfs 48 cf
<b>Subcatchment 10A: Area 10A</b>	Runoff Area=4,995 sf 100.00% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.03 cfs 78 cf
<b>Subcatchment 13: Area 13</b>	Runoff Area=6,143 sf 98.68% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.04 cfs 95 cf
<b>Subcatchment 14: Area 14</b>	Runoff Area=3,043 sf 95.60% Impervious Runoff Depth=0.14" Tc=12.0 min CN=97 Runoff=0.01 cfs 35 cf
<b>Subcatchment 14A: Area 14A</b>	Runoff Area=1,224 sf 100.00% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.01 cfs 19 cf
<b>Subcatchment 16A: Area 16a</b>	Runoff Area=7,954 sf 99.41% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.05 cfs 123 cf
<b>Subcatchment 19A: Area 19A</b>	Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.05 cfs 133 cf
<b>Pond 11P: Planter PB-3B</b>	Peak Elev=610.58' Storage=48 cf Inflow=0.02 cfs 48 cf Outflow=0.00 cfs 0 cf
<b>Pond 12P: DS 23</b>	Peak Elev=612.23' Inflow=0.03 cfs 78 cf 10.0" Round Culvert n=0.010 L=125.0' S=0.0043 '/' Outflow=0.03 cfs 78 cf
<b>Pond 15P: DS #2107</b>	Peak Elev=608.96' Inflow=0.14 cfs 354 cf 15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=0.14 cfs 354 cf
<b>Pond DS 24: Planter PB-5B</b>	Peak Elev=611.23' Storage=95 cf Inflow=0.04 cfs 95 cf Outflow=0.00 cfs 0 cf
<b>Pond DS 25: DS 25</b>	Peak Elev=610.48' Inflow=0.00 cfs 0 cf 10.0" Round Culvert n=0.010 L=77.0' S=0.0062 '/' Outflow=0.00 cfs 0 cf
<b>Pond DS 31: Planter PB-6B</b>	Peak Elev=609.41' Storage=35 cf Inflow=0.01 cfs 35 cf Outflow=0.00 cfs 0 cf
<b>Pond DS 32: DS 32</b>	Peak Elev=609.04' Inflow=0.14 cfs 353 cf 12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/' Outflow=0.14 cfs 354 cf

**Total Runoff Area = 36,060 sf Runoff Volume = 531 cf Average Runoff Depth = 0.18"**  
**1.05% Pervious = 379 sf 98.95% Impervious = 35,681 sf**

**Summary for Subcatchment 10: Area 10**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 48 cf, Depth= 0.14"

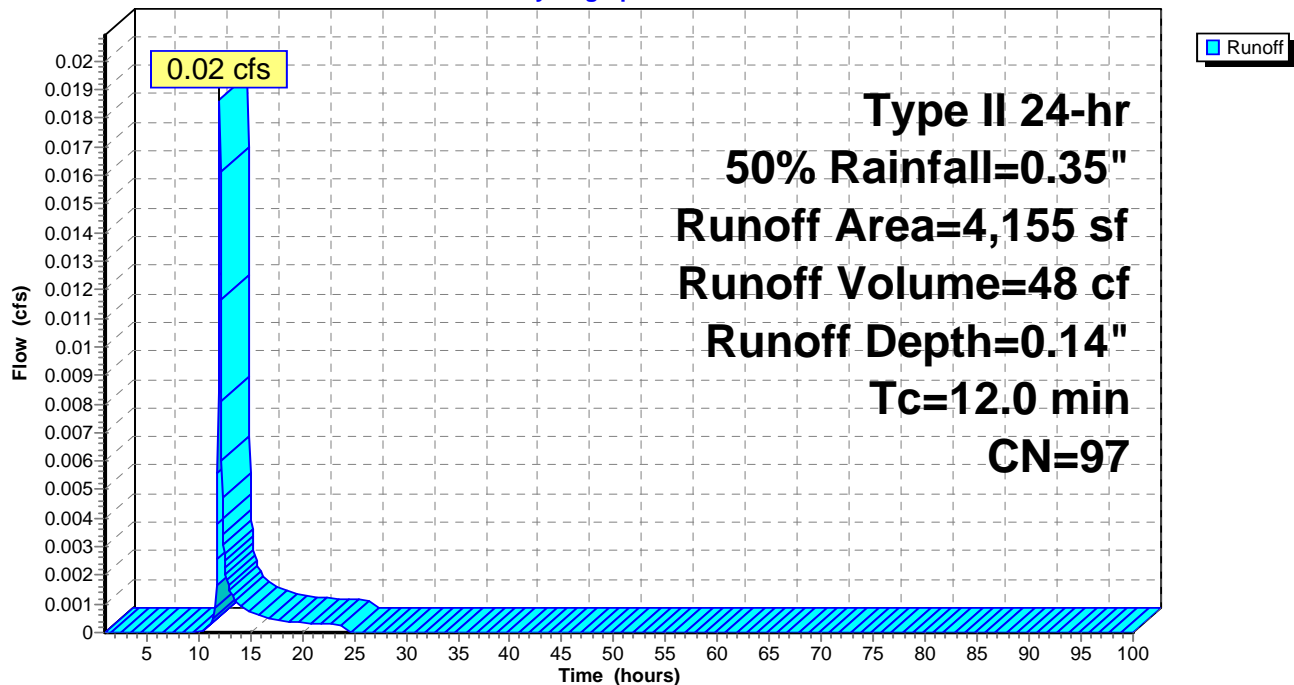
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
117	80	>75% Grass cover, Good, HSG D
4,038	98	Paved parking, HSG D
4,155	97	Weighted Average
117		2.82% Pervious Area
4,038		97.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 10: Area 10**

Hydrograph





**Summary for Subcatchment 10A: Area 10A**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 78 cf, Depth= 0.19"

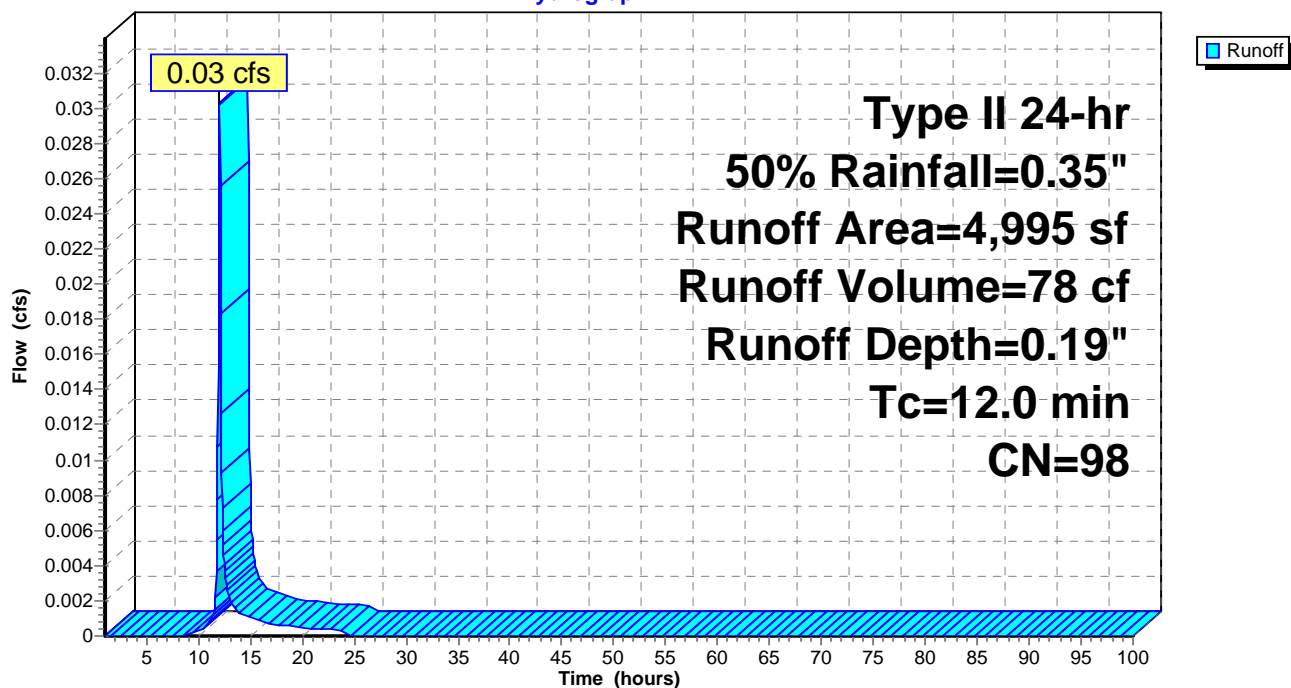
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
4,995	98	Paved parking, HSG D
4,995		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 10A: Area 10A**

Hydrograph



**Summary for Subcatchment 13: Area 13**

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 95 cf, Depth= 0.19"

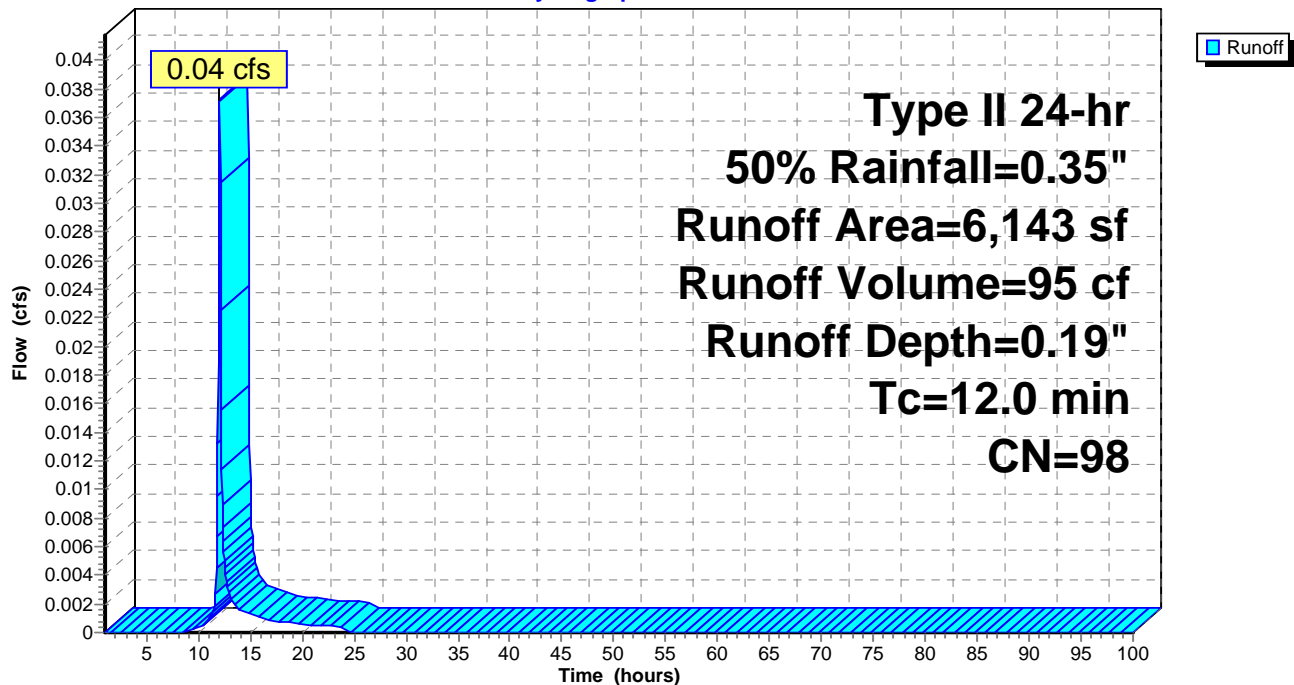
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
81	80	>75% Grass cover, Good, HSG D
6,062	98	Paved parking, HSG D
6,143	98	Weighted Average
81		1.32% Pervious Area
6,062		98.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 13: Area 13**

Hydrograph



**Summary for Subcatchment 14: Area 14**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 35 cf, Depth= 0.14"

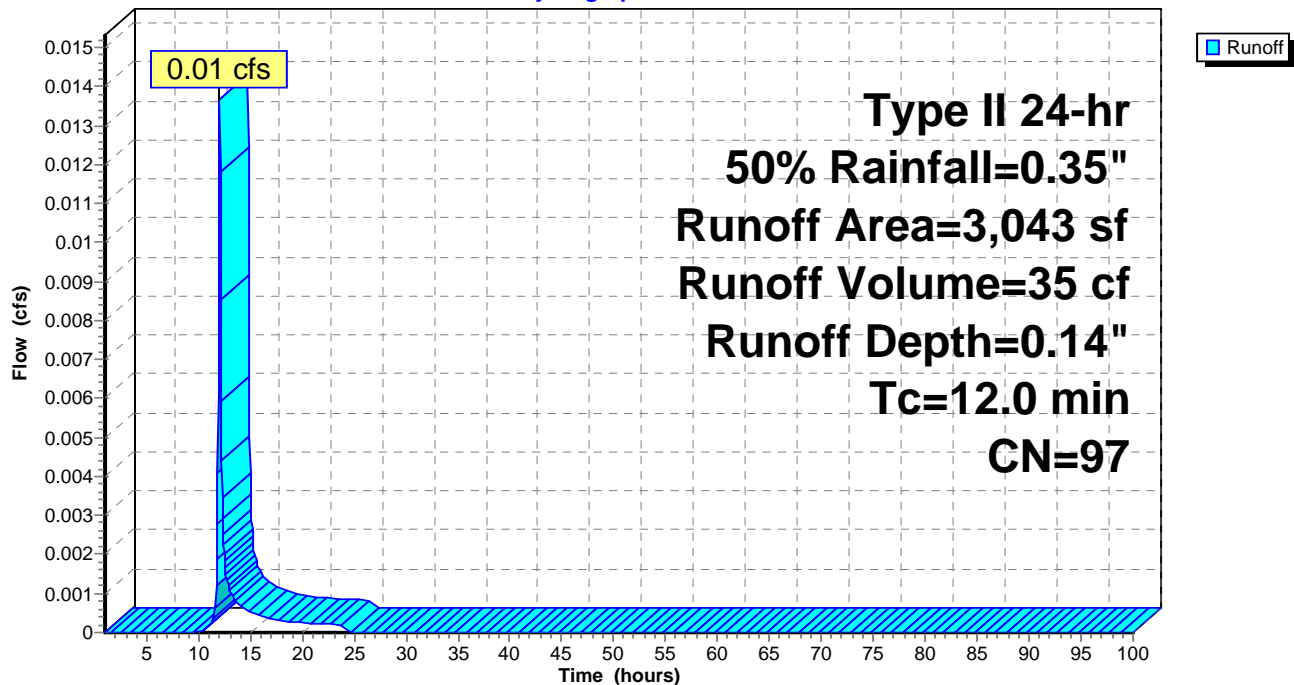
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
134	80	>75% Grass cover, Good, HSG D
2,909	98	Paved parking, HSG D
3,043	97	Weighted Average
134		4.40% Pervious Area
2,909		95.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 14: Area 14**

Hydrograph



**Summary for Subcatchment 14A: Area 14A**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 19 cf, Depth= 0.19"

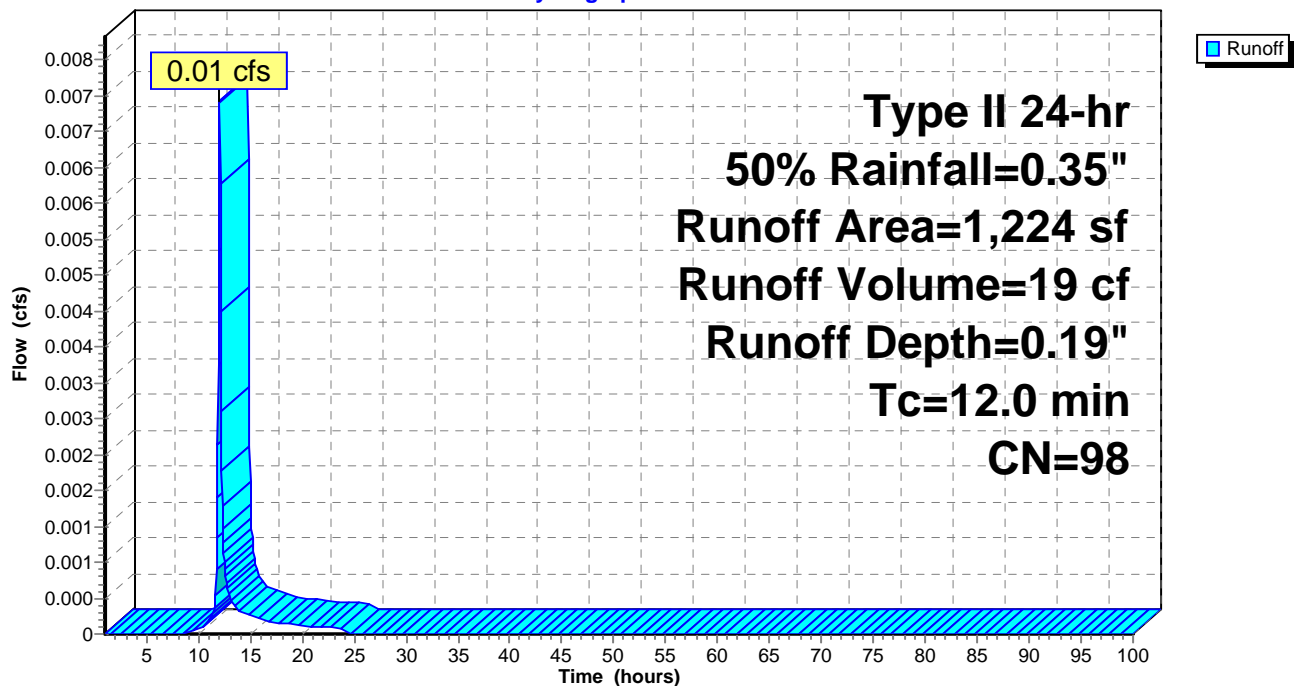
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
1,224	98	Paved parking, HSG D
1,224		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 14A: Area 14A**

Hydrograph



**Summary for Subcatchment 16A: Area 16a**

Runoff = 0.05 cfs @ 12.04 hrs, Volume= 123 cf, Depth= 0.19"

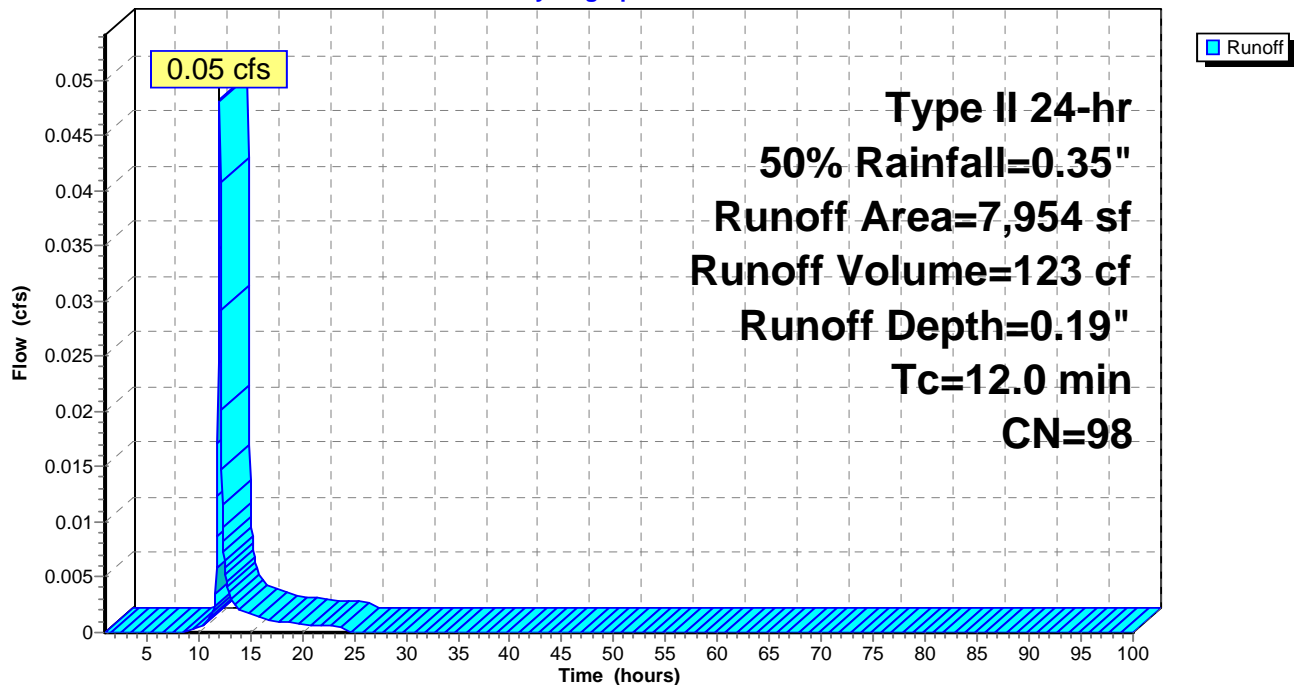
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
47	80	>75% Grass cover, Good, HSG D
7,907	98	Paved parking, HSG D
7,954	98	Weighted Average
47		0.59% Pervious Area
7,907		99.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 16A: Area 16a**

Hydrograph



**Summary for Subcatchment 19A: Area 19A**

Runoff = 0.05 cfs @ 12.04 hrs, Volume= 133 cf, Depth= 0.19"

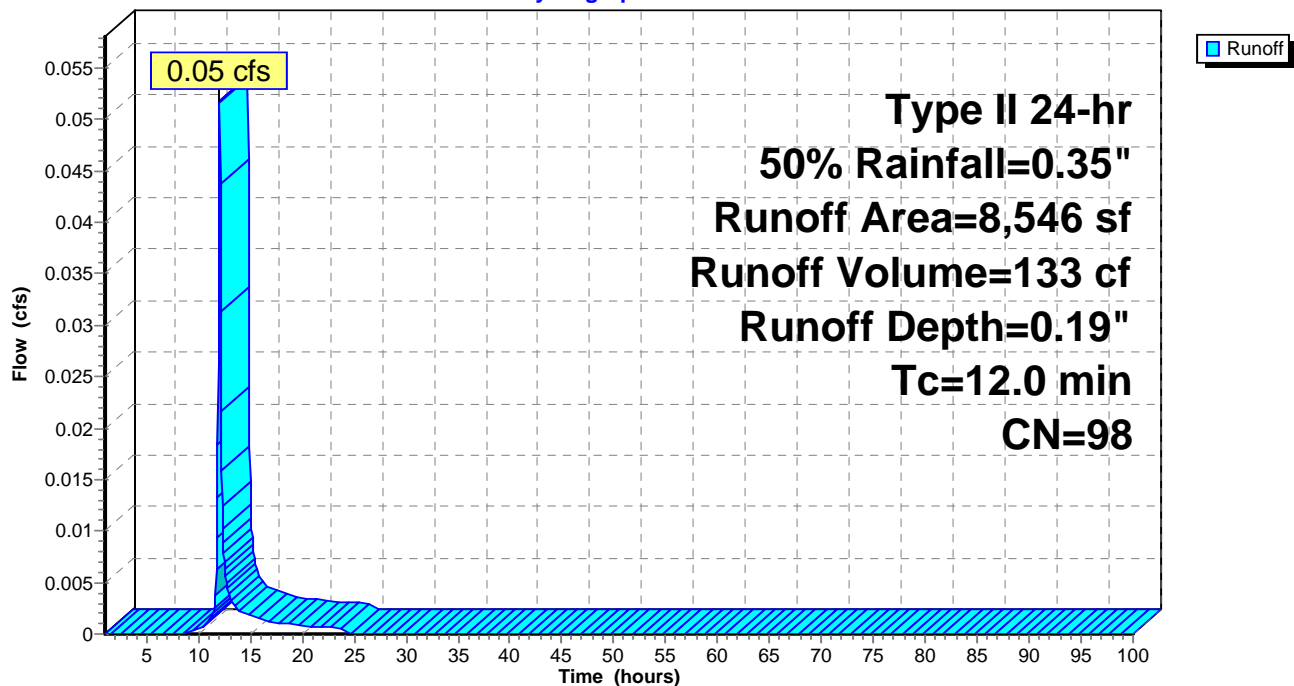
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
8,546	98	Paved parking, HSG D
8,546		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 19A: Area 19A**

Hydrograph



**Summary for Pond 11P: Planter PB-3B**

Inflow Area = 4,155 sf, 97.18% Impervious, Inflow Depth = 0.14" for 50% event  
 Inflow = 0.02 cfs @ 12.04 hrs, Volume= 48 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.58' @ 24.70 hrs Surf.Area= 254 sf Storage= 48 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.11'	567 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.11	254	0.0	0	0
613.61	254	40.0	356	356
613.62	254	20.0	1	356
614.94	254	50.0	168	524
615.11	254	100.0	43	567

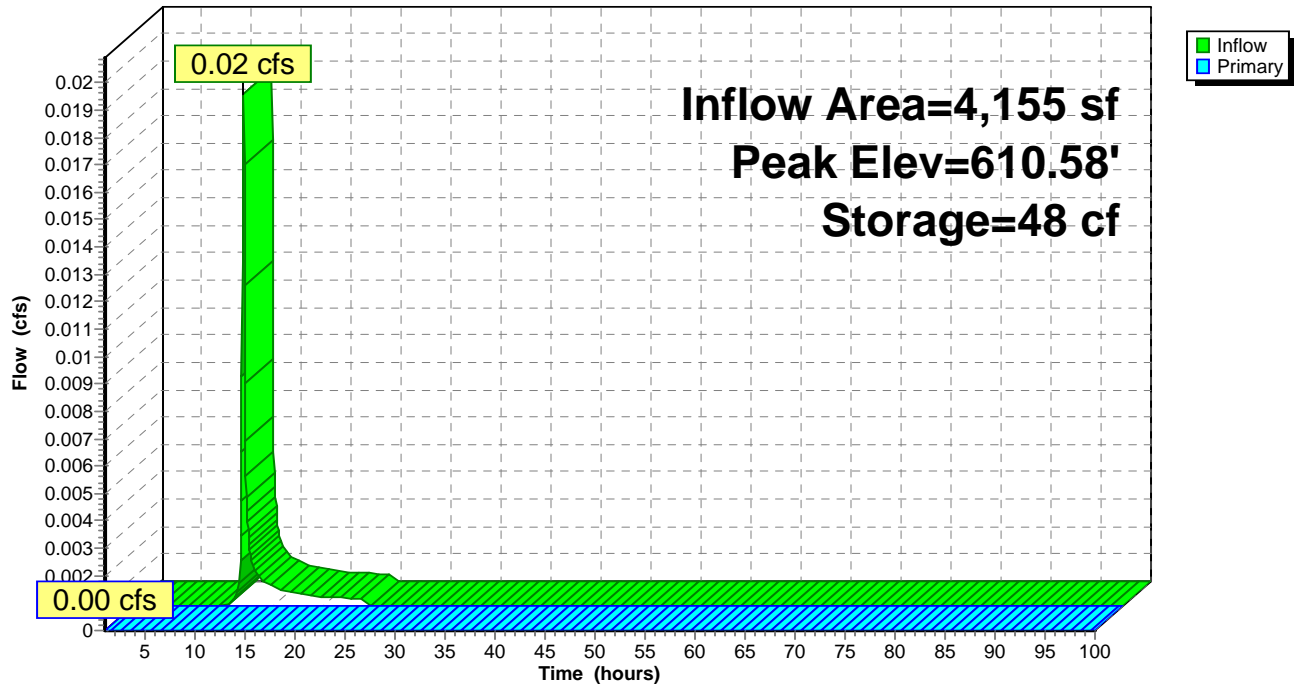
Device	Routing	Invert	Outlet Devices
#1	Primary	612.67'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.67' / 612.60' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.61'	<b>6.0" Round Culvert</b> L= 47.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.61' / 610.61' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.11'	<b>0.100 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.10'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.11' TW=612.13' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

**Pond 11P: Planter PB-3B**

Hydrograph





**Summary for Pond 12P: DS 23**

Inflow Area = 9,150 sf, 98.72% Impervious, Inflow Depth = 0.10" for 50% event  
 Inflow = 0.03 cfs @ 12.04 hrs, Volume= 78 cf  
 Outflow = 0.03 cfs @ 12.04 hrs, Volume= 78 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.03 cfs @ 12.04 hrs, Volume= 78 cf

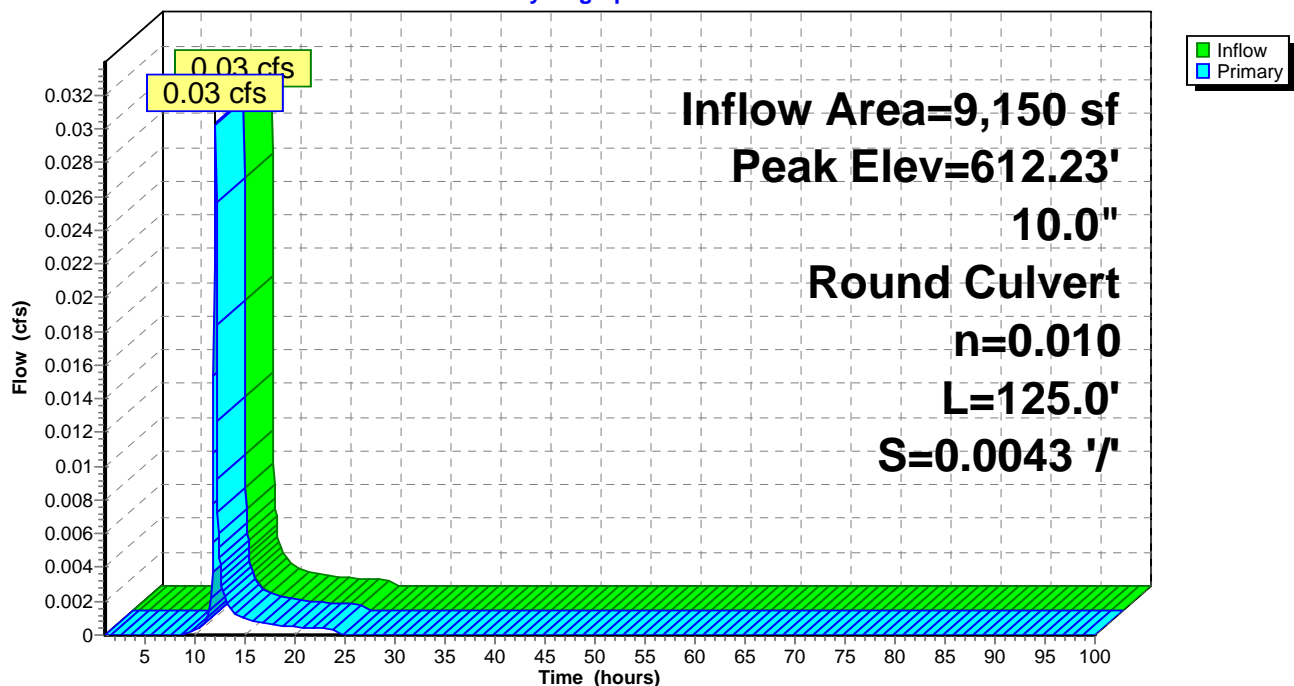
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.23' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.13'	<b>10.0" Round Culvert</b> L= 125.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.13' / 611.59' S= 0.0043 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.03 cfs @ 12.04 hrs HW=612.23' TW=609.03' (Dynamic Tailwater)  
 1=Culvert (Barrel Controls 0.03 cfs @ 1.26 fps)

**Pond 12P: DS 23****Hydrograph**

**Summary for Pond 15P: DS #2107**

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth = 0.12" for 50% event  
 Inflow = 0.14 cfs @ 12.04 hrs, Volume= 354 cf  
 Outflow = 0.14 cfs @ 12.04 hrs, Volume= 354 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.14 cfs @ 12.04 hrs, Volume= 354 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

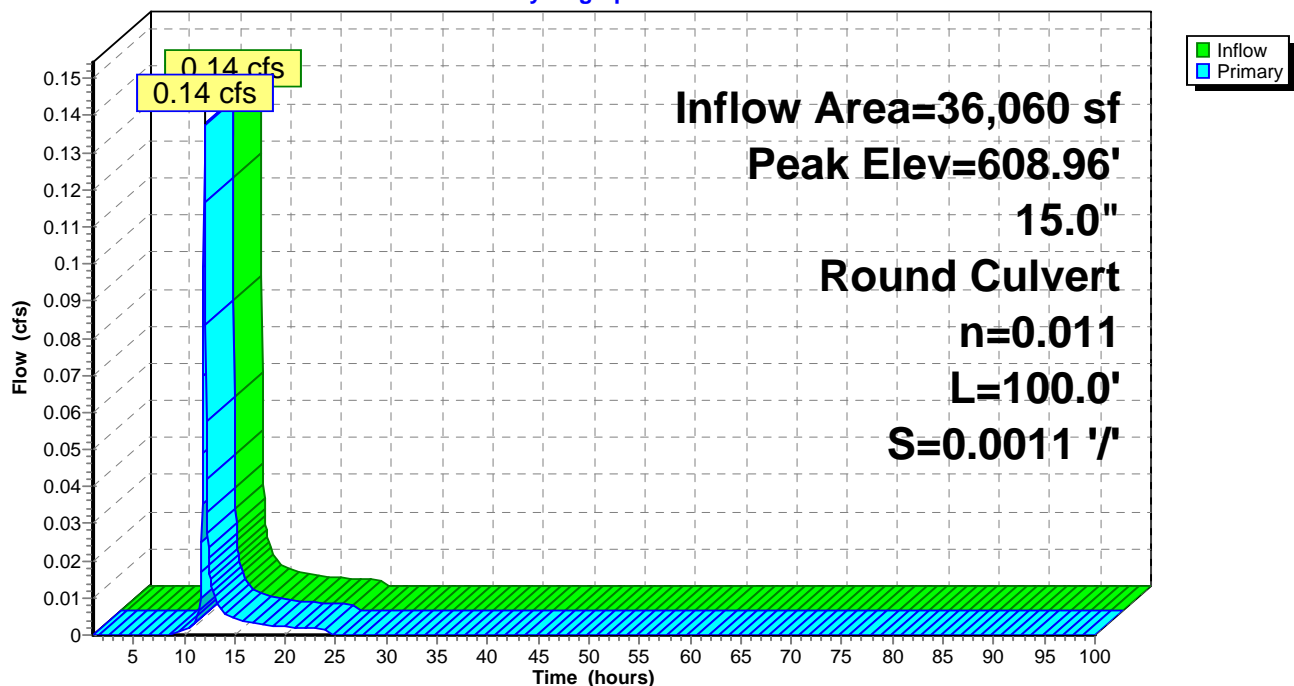
Peak Elev= 608.96' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>15.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

**Primary OutFlow** Max=0.14 cfs @ 12.04 hrs HW=608.96' (Free Discharge)

1=Culvert (Barrel Controls 0.14 cfs @ 1.19 fps)

**Pond 15P: DS #2107****Hydrograph**

**Summary for Pond DS 24: Planter PB-5B**

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 0.19" for 50% event  
 Inflow = 0.04 cfs @ 12.04 hrs, Volume= 95 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.23' @ 24.70 hrs Surf.Area= 114 sf Storage= 95 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	609.14'	254 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
609.14	114	0.0	0	0
612.64	114	40.0	160	160
612.65	114	20.0	0	160
613.97	114	50.0	75	235
614.14	114	100.0	19	254

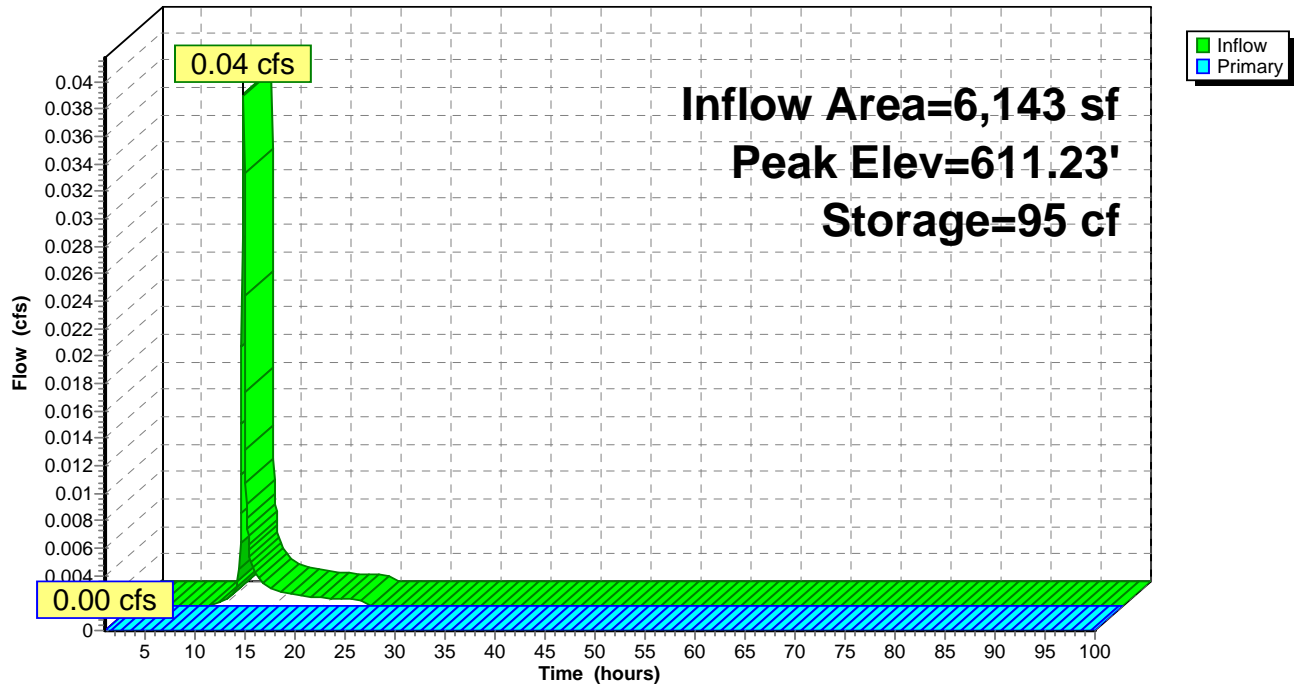
Device	Routing	Invert	Outlet Devices
#1	Primary	611.57'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.57' / 611.50' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.64'	<b>6.0" Round Culvert</b> L= 35.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 609.64' / 609.64' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	609.14'	<b>0.500 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.13'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=609.14' TW=610.48' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 24: Planter PB-5B

Hydrograph



**Summary for Pond DS 25: DS 25**

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 0.00" for 50% event  
 Inflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

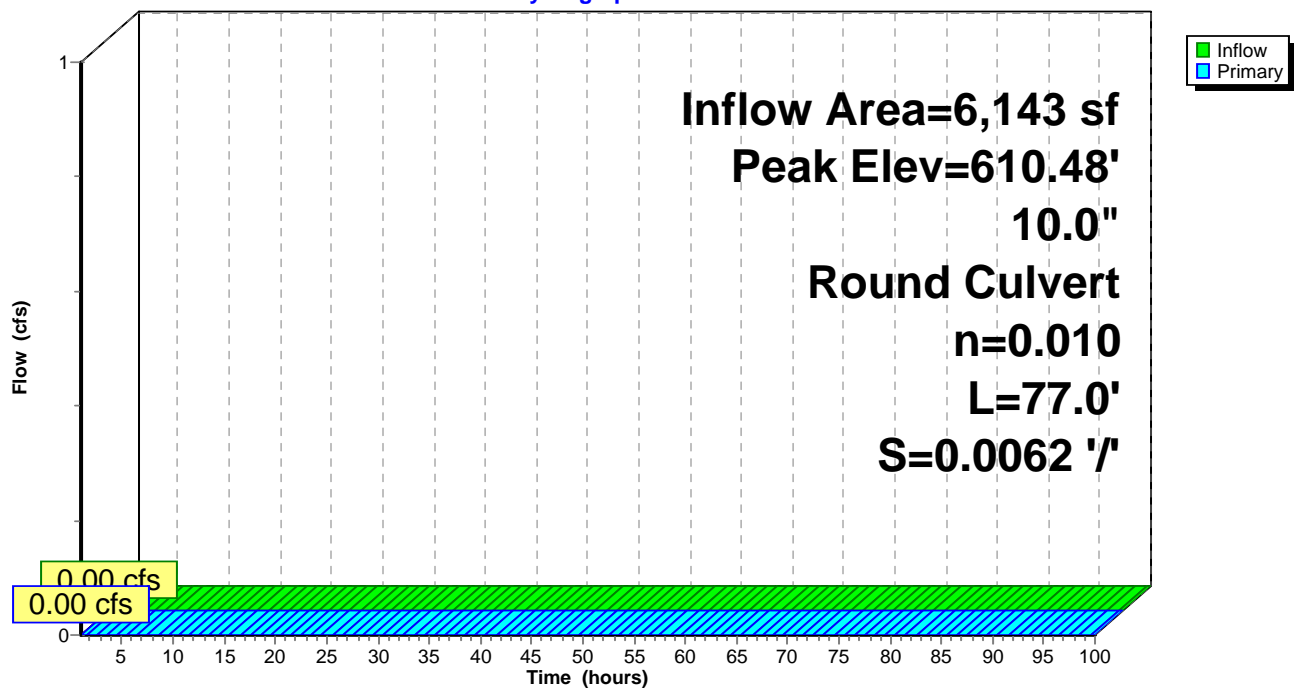
Peak Elev= 610.48' @ 1.00 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	610.48'	<b>10.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 610.48' / 610.00' S= 0.0062 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.48' TW=608.71' (Dynamic Tailwater)

↑1=Culvert ( Controls 0.00 cfs)

**Pond DS 25: DS 25****Hydrograph**

**Summary for Pond DS 31: Planter PB-6B**

Inflow Area = 3,043 sf, 95.60% Impervious, Inflow Depth = 0.14" for 50% event  
 Inflow = 0.01 cfs @ 12.04 hrs, Volume= 35 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 609.41' @ 24.70 hrs Surf.Area= 133 sf Storage= 35 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	608.75'	297 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.75	133	0.0	0	0
612.25	133	40.0	186	186
612.26	133	20.0	0	186
613.58	133	50.0	88	274
613.75	133	100.0	23	297

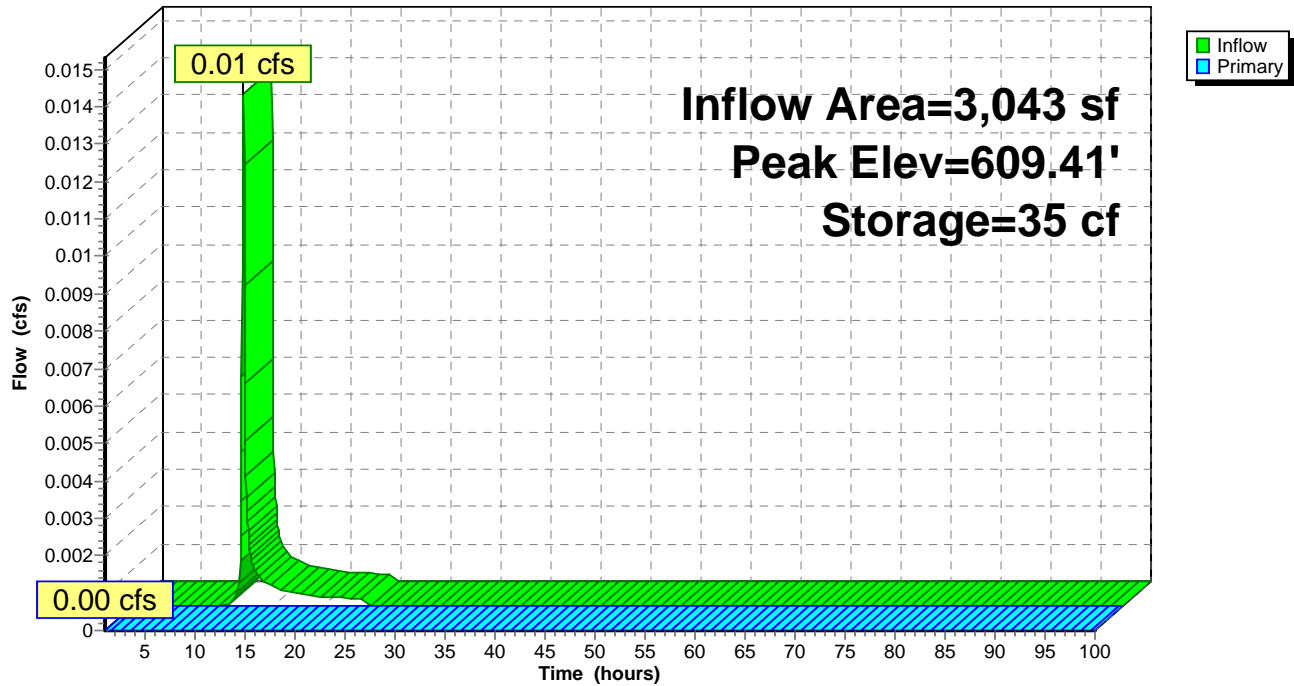
Device	Routing	Invert	Outlet Devices
#1	Primary	610.37'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.37' / 610.31' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.25'	<b>6.0" Round Culvert</b> L= 42.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.25' / 609.25' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.75'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.74'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=608.75' TW=608.71' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

**Pond DS 31: Planter PB-6B**

Hydrograph



**Summary for Pond DS 32: DS 32**

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth = 0.12" for 50% event  
 Inflow = 0.14 cfs @ 12.04 hrs, Volume= 353 cf  
 Outflow = 0.14 cfs @ 12.04 hrs, Volume= 354 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.14 cfs @ 12.04 hrs, Volume= 354 cf

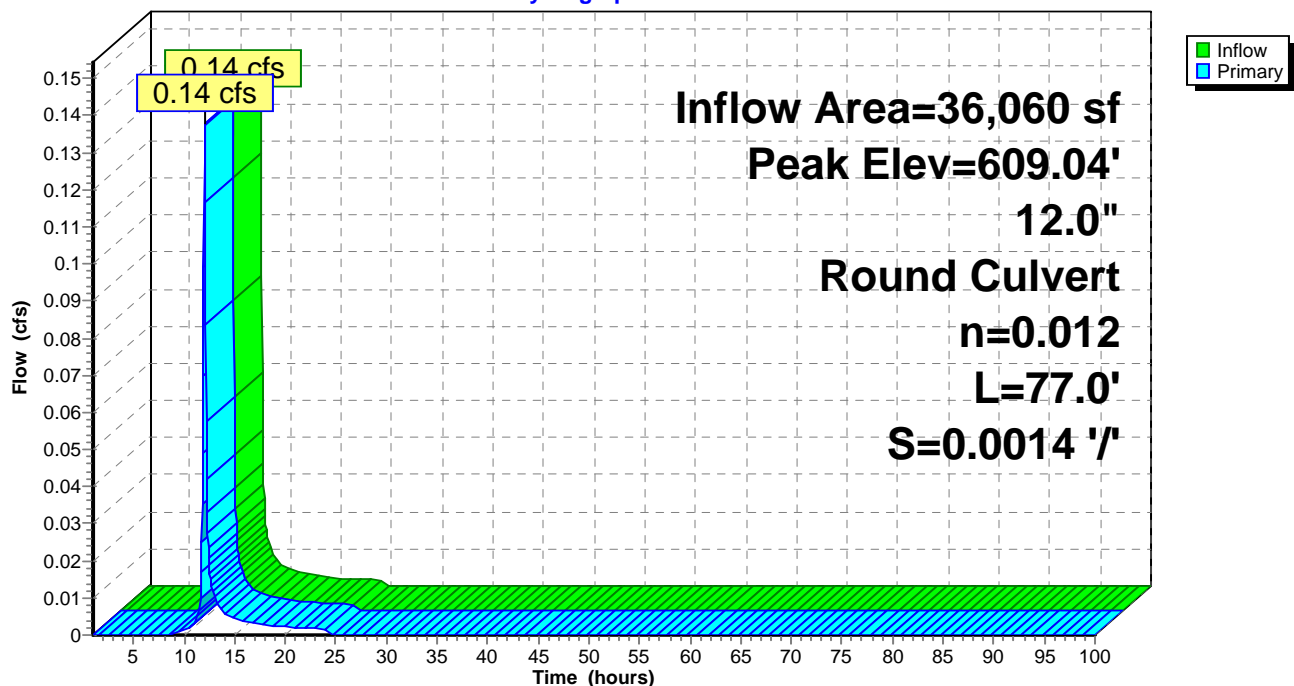
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.04' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.14 cfs @ 12.04 hrs HW=609.03' TW=608.96' (Dynamic Tailwater)  
 1=Culvert (Outlet Controls 0.14 cfs @ 0.92 fps)

**Pond DS 32: DS 32****Hydrograph**



**Genesee St Final**

Prepared by Microsoft

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Type II 24-hr 75% Rainfall=0.50"

Printed 5/4/2015

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 10: Area 10</b>	Runoff Area=4,155 sf 97.18% Impervious Runoff Depth=0.26" Tc=12.0 min CN=97 Runoff=0.03 cfs 89 cf
<b>Subcatchment 10A: Area 10A</b>	Runoff Area=4,995 sf 100.00% Impervious Runoff Depth=0.32" Tc=12.0 min CN=98 Runoff=0.05 cfs 132 cf
<b>Subcatchment 13: Area 13</b>	Runoff Area=6,143 sf 98.68% Impervious Runoff Depth=0.32" Tc=12.0 min CN=98 Runoff=0.06 cfs 163 cf
<b>Subcatchment 14: Area 14</b>	Runoff Area=3,043 sf 95.60% Impervious Runoff Depth=0.26" Tc=12.0 min CN=97 Runoff=0.03 cfs 65 cf
<b>Subcatchment 14A: Area 14A</b>	Runoff Area=1,224 sf 100.00% Impervious Runoff Depth=0.32" Tc=12.0 min CN=98 Runoff=0.01 cfs 32 cf
<b>Subcatchment 16A: Area 16a</b>	Runoff Area=7,954 sf 99.41% Impervious Runoff Depth=0.32" Tc=12.0 min CN=98 Runoff=0.08 cfs 211 cf
<b>Subcatchment 19A: Area 19A</b>	Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=0.32" Tc=12.0 min CN=98 Runoff=0.09 cfs 226 cf
<b>Pond 11P: Planter PB-3B</b>	Peak Elev=610.99' Storage=89 cf Inflow=0.03 cfs 89 cf Outflow=0.00 cfs 0 cf
<b>Pond 12P: DS 23</b>	Peak Elev=612.26' Inflow=0.05 cfs 132 cf 10.0" Round Culvert n=0.010 L=125.0' S=0.0043 '/' Outflow=0.05 cfs 133 cf
<b>Pond 15P: DS #2107</b>	Peak Elev=609.03' Inflow=0.23 cfs 655 cf 15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=0.23 cfs 655 cf
<b>Pond DS 24: Planter PB-5B</b>	Peak Elev=611.80' Storage=121 cf Inflow=0.06 cfs 163 cf Outflow=0.00 cfs 52 cf
<b>Pond DS 25: DS 25</b>	Peak Elev=610.50' Inflow=0.00 cfs 52 cf 10.0" Round Culvert n=0.010 L=77.0' S=0.0062 '/' Outflow=0.00 cfs 52 cf
<b>Pond DS 31: Planter PB-6B</b>	Peak Elev=609.97' Storage=65 cf Inflow=0.03 cfs 65 cf Outflow=0.00 cfs 0 cf
<b>Pond DS 32: DS 32</b>	Peak Elev=609.12' Inflow=0.23 cfs 655 cf 12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/' Outflow=0.23 cfs 655 cf

**Total Runoff Area = 36,060 sf Runoff Volume = 919 cf Average Runoff Depth = 0.31"**  
**1.05% Pervious = 379 sf 98.95% Impervious = 35,681 sf**

**Summary for Subcatchment 10: Area 10**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 89 cf, Depth= 0.26"

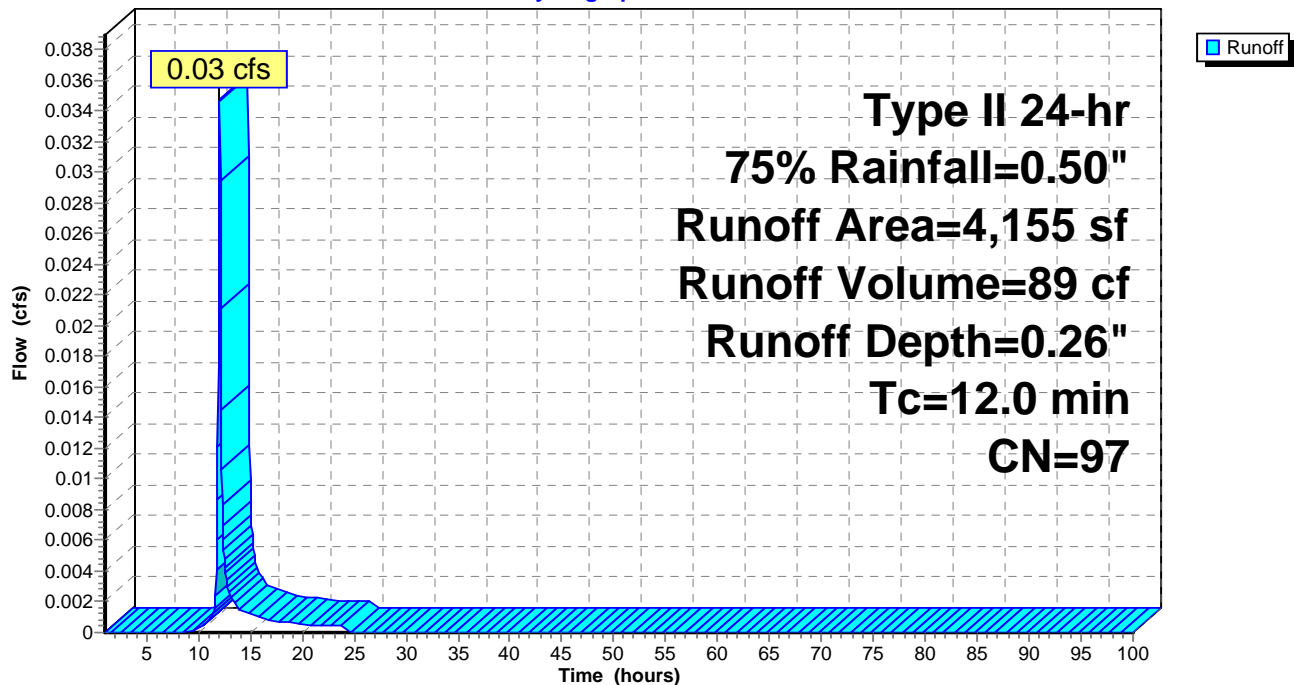
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
117	80	>75% Grass cover, Good, HSG D
4,038	98	Paved parking, HSG D
4,155	97	Weighted Average
117		2.82% Pervious Area
4,038		97.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 10: Area 10**

Hydrograph



**Summary for Subcatchment 10A: Area 10A**

Runoff = 0.05 cfs @ 12.04 hrs, Volume= 132 cf, Depth= 0.32"

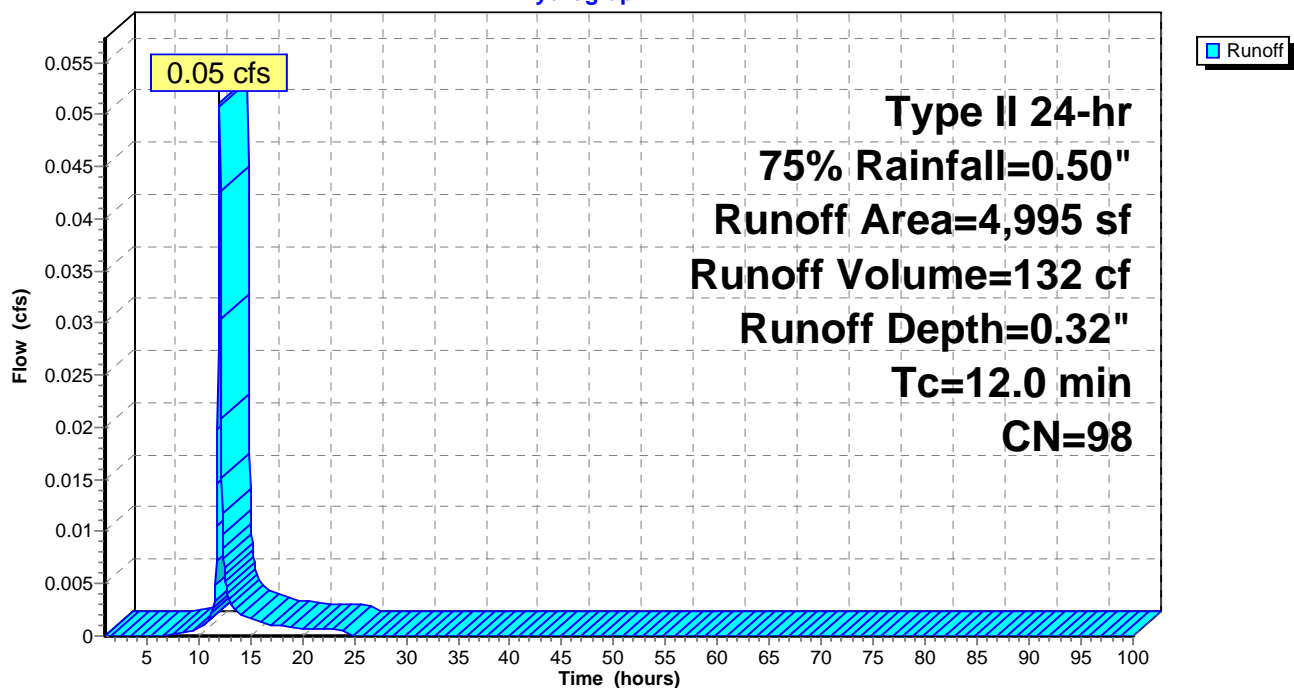
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
4,995	98	Paved parking, HSG D
4,995		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 10A: Area 10A**

Hydrograph



**Summary for Subcatchment 13: Area 13**

Runoff = 0.06 cfs @ 12.04 hrs, Volume= 163 cf, Depth= 0.32"

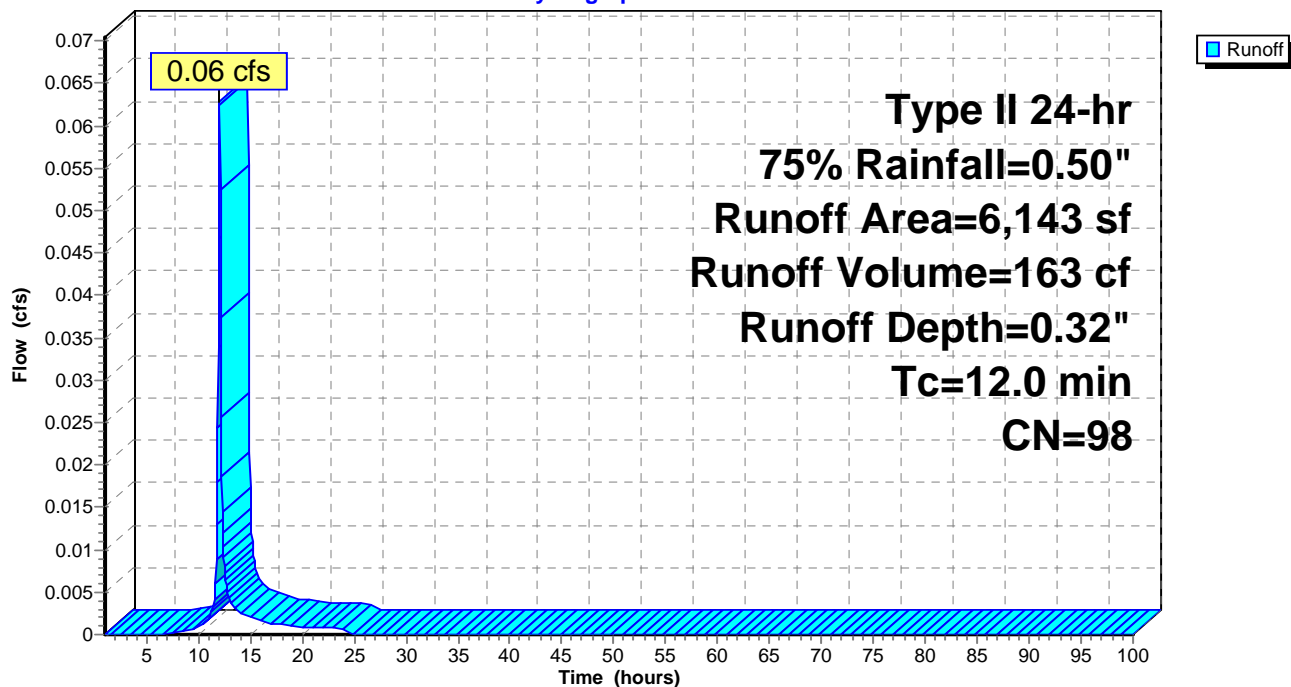
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
81	80	>75% Grass cover, Good, HSG D
6,062	98	Paved parking, HSG D
6,143	98	Weighted Average
81		1.32% Pervious Area
6,062		98.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 13: Area 13**

Hydrograph



**Summary for Subcatchment 14: Area 14**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 65 cf, Depth= 0.26"

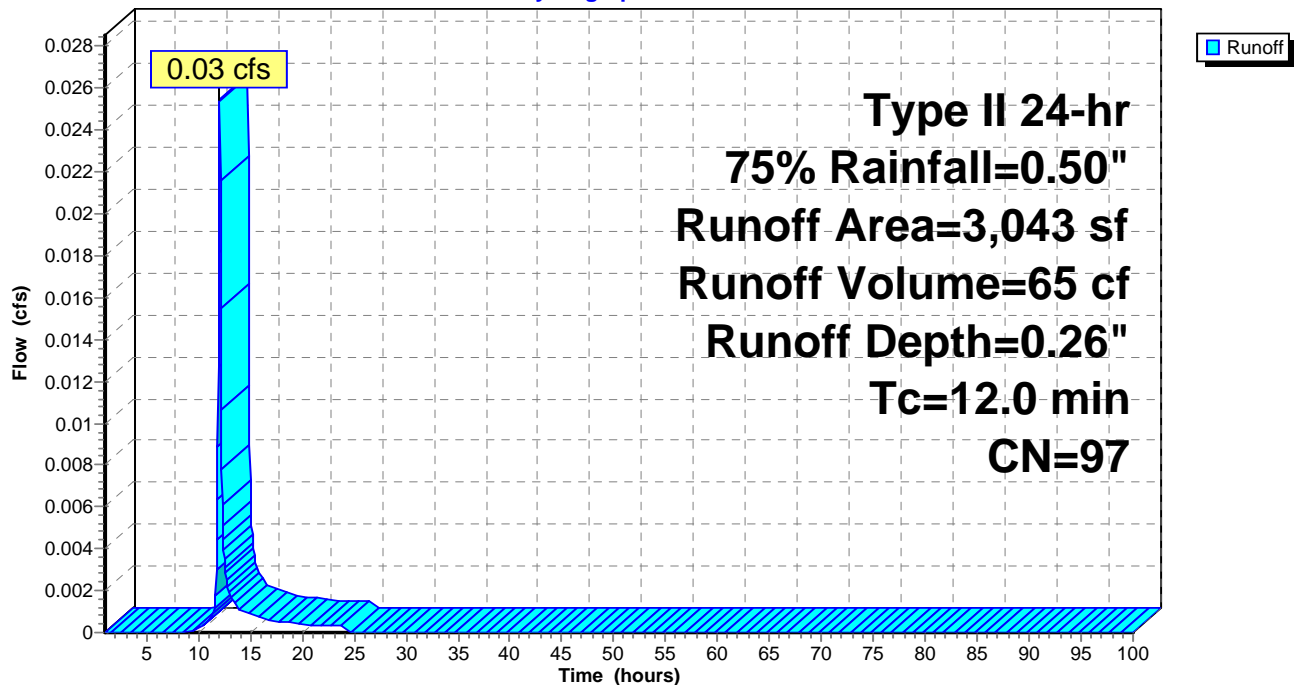
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
134	80	>75% Grass cover, Good, HSG D
2,909	98	Paved parking, HSG D
3,043	97	Weighted Average
134		4.40% Pervious Area
2,909		95.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 14: Area 14**

Hydrograph



**Summary for Subcatchment 14A: Area 14A**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 32 cf, Depth= 0.32"

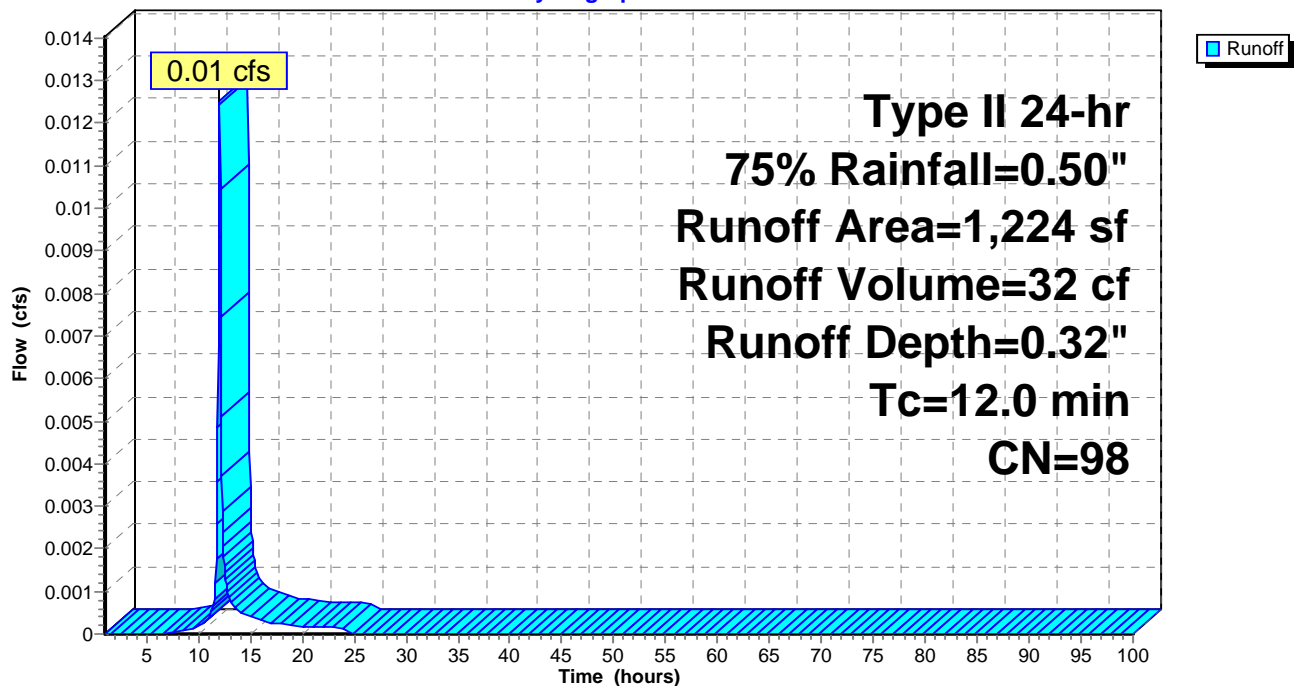
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
1,224	98	Paved parking, HSG D
1,224		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 14A: Area 14A**

Hydrograph



**Summary for Subcatchment 16A: Area 16a**

Runoff = 0.08 cfs @ 12.04 hrs, Volume= 211 cf, Depth= 0.32"

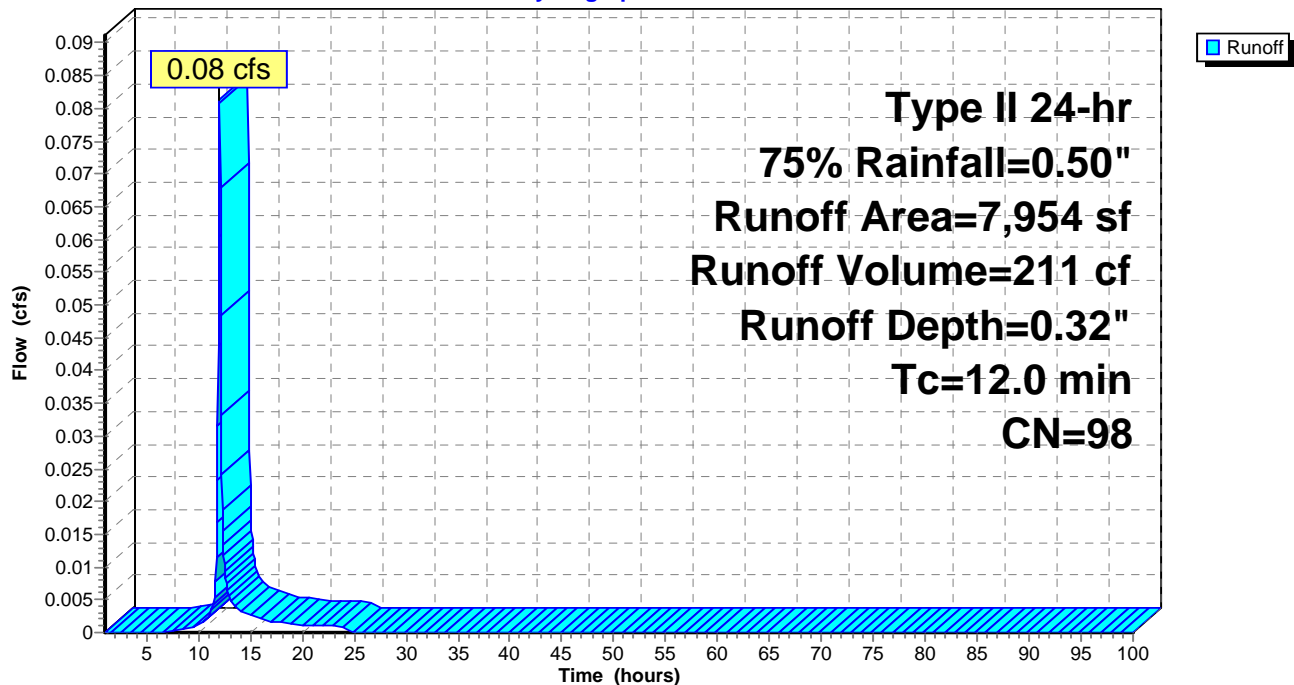
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
47	80	>75% Grass cover, Good, HSG D
7,907	98	Paved parking, HSG D
7,954	98	Weighted Average
47		0.59% Pervious Area
7,907		99.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 16A: Area 16a**

Hydrograph



**Summary for Subcatchment 19A: Area 19A**

Runoff = 0.09 cfs @ 12.04 hrs, Volume= 226 cf, Depth= 0.32"

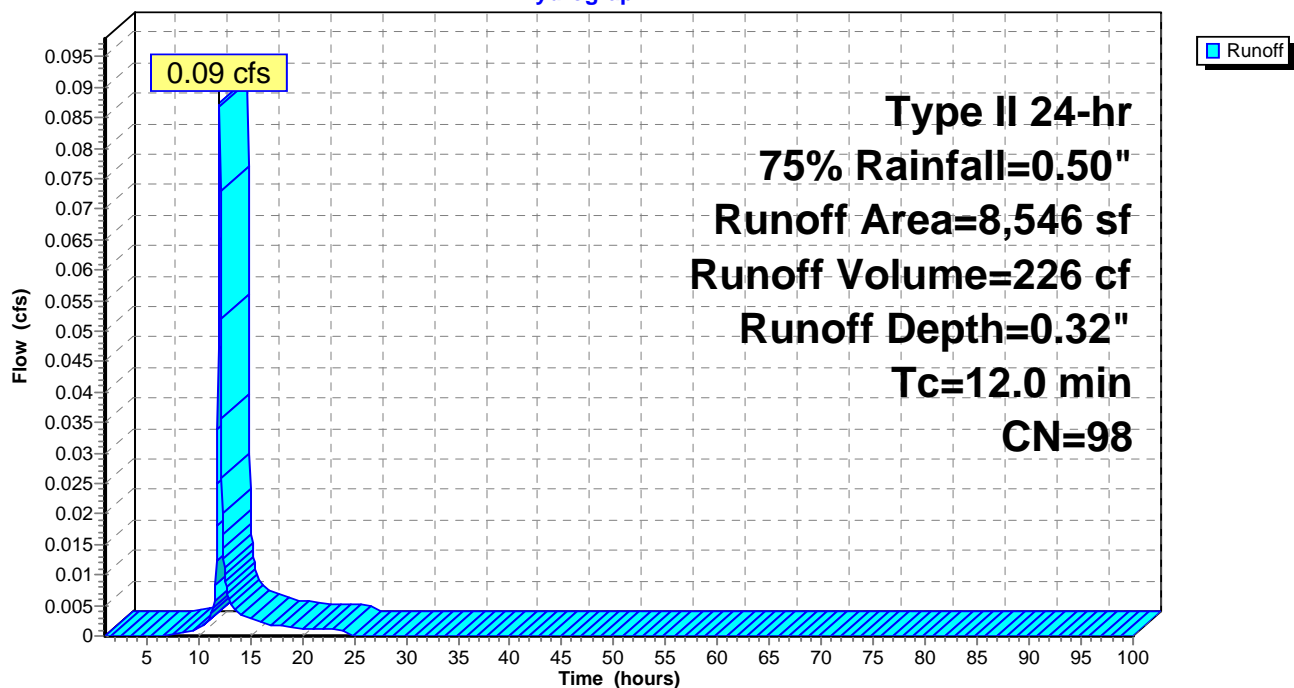
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
8,546	98	Paved parking, HSG D
8,546		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 19A: Area 19A**

Hydrograph





**Summary for Pond 11P: Planter PB-3B**

Inflow Area = 4,155 sf, 97.18% Impervious, Inflow Depth = 0.26" for 75% event  
 Inflow = 0.03 cfs @ 12.04 hrs, Volume= 89 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.99' @ 24.70 hrs Surf.Area= 254 sf Storage= 89 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.11'	567 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.11	254	0.0	0	0
613.61	254	40.0	356	356
613.62	254	20.0	1	356
614.94	254	50.0	168	524
615.11	254	100.0	43	567

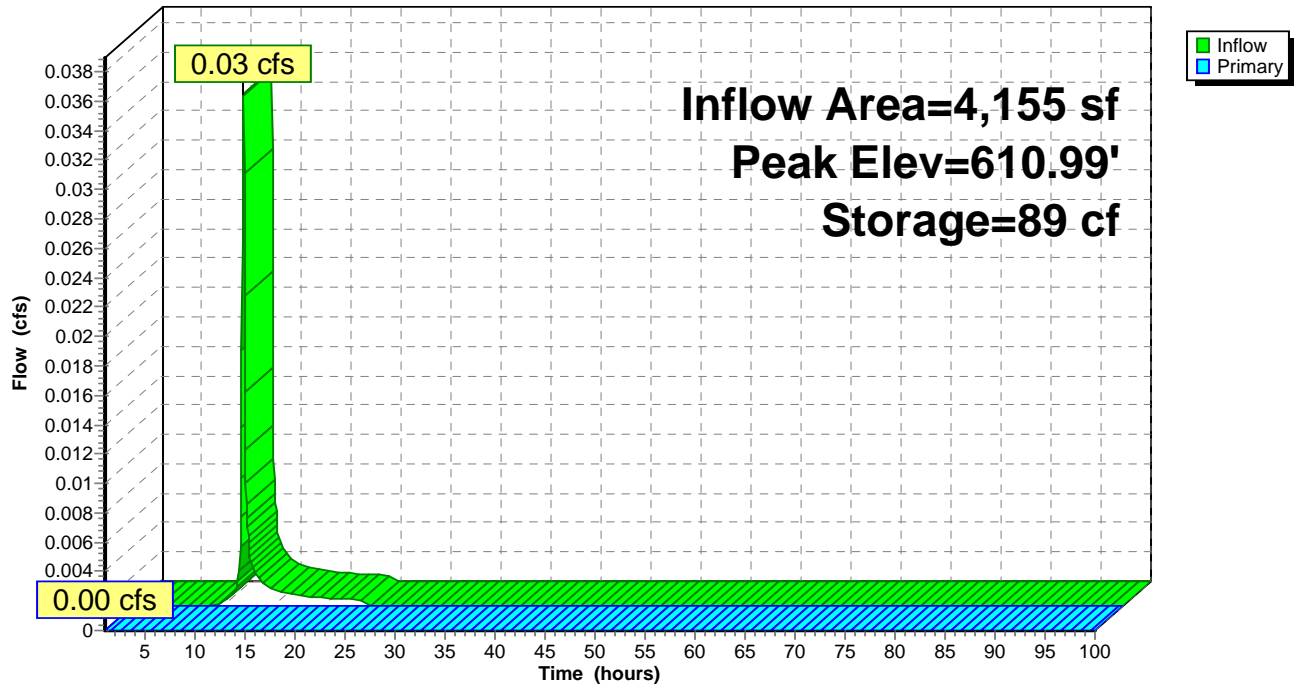
Device	Routing	Invert	Outlet Devices
#1	Primary	612.67'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.67' / 612.60' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.61'	<b>6.0" Round Culvert</b> L= 47.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.61' / 610.61' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.11'	<b>0.100 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.10'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.11' TW=612.13' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

**Pond 11P: Planter PB-3B**

Hydrograph



**Summary for Pond 12P: DS 23**

Inflow Area = 9,150 sf, 98.72% Impervious, Inflow Depth = 0.17" for 75% event  
 Inflow = 0.05 cfs @ 12.04 hrs, Volume= 132 cf  
 Outflow = 0.05 cfs @ 12.04 hrs, Volume= 133 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.05 cfs @ 12.04 hrs, Volume= 133 cf

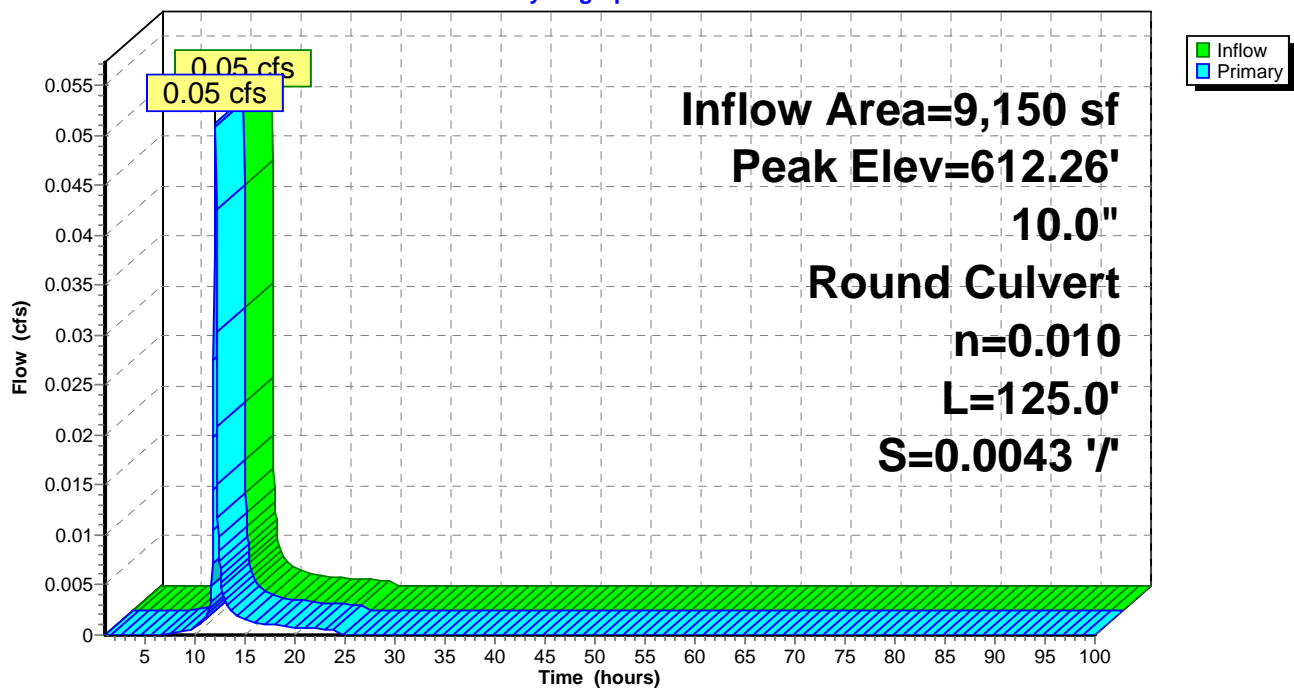
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.26' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.13'	<b>10.0" Round Culvert</b> L= 125.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.13' / 611.59' S= 0.0043 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.05 cfs @ 12.04 hrs HW=612.26' TW=609.12' (Dynamic Tailwater)  
 1=Culvert (Barrel Controls 0.05 cfs @ 1.46 fps)

**Pond 12P: DS 23****Hydrograph**

# Genesee St Final

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Type II 24-hr 75% Rainfall=0.50"

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## Summary for Pond 15P: DS #2107

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth = 0.22" for 75% event  
Inflow = 0.23 cfs @ 12.04 hrs, Volume= 655 cf  
Outflow = 0.23 cfs @ 12.04 hrs, Volume= 655 cf, Atten= 0%, Lag= 0.0 min  
Primary = 0.23 cfs @ 12.04 hrs, Volume= 655 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.03' @ 12.04 hrs

Flood Elev= 647.22'

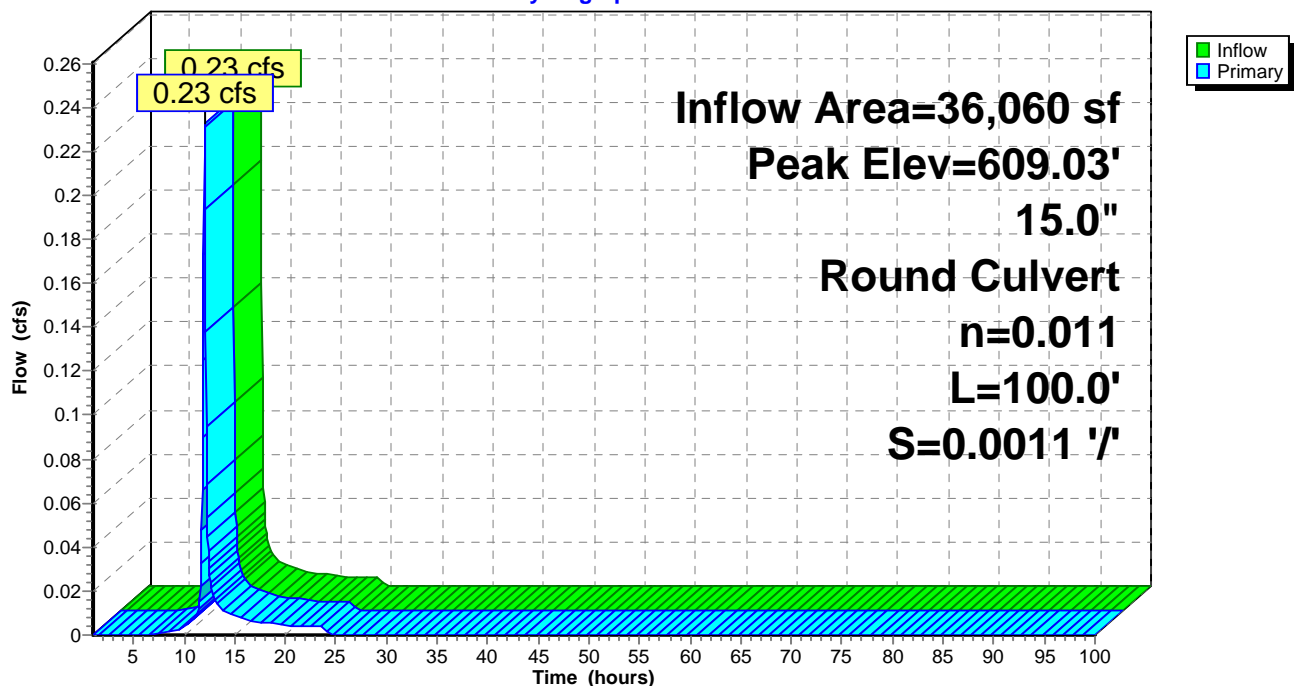
Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>15.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

**Primary OutFlow** Max=0.23 cfs @ 12.04 hrs HW=609.03' (Free Discharge)

1=Culvert (Barrel Controls 0.23 cfs @ 1.40 fps)

## Pond 15P: DS #2107

### Hydrograph



**Summary for Pond DS 24: Planter PB-5B**

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 0.32" for 75% event  
 Inflow = 0.06 cfs @ 12.04 hrs, Volume= 163 cf  
 Outflow = 0.00 cfs @ 13.60 hrs, Volume= 52 cf, Atten= 98%, Lag= 93.8 min  
 Primary = 0.00 cfs @ 13.60 hrs, Volume= 52 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.80' @ 17.04 hrs Surf.Area= 114 sf Storage= 121 cf

Plug-Flow detention time= 435.0 min calculated for 52 cf (32% of inflow)  
 Center-of-Mass det. time= 307.0 min ( 1,122.8 - 815.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	609.14'	254 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
609.14	114	0.0	0	0
612.64	114	40.0	160	160
612.65	114	20.0	0	160
613.97	114	50.0	75	235
614.14	114	100.0	19	254

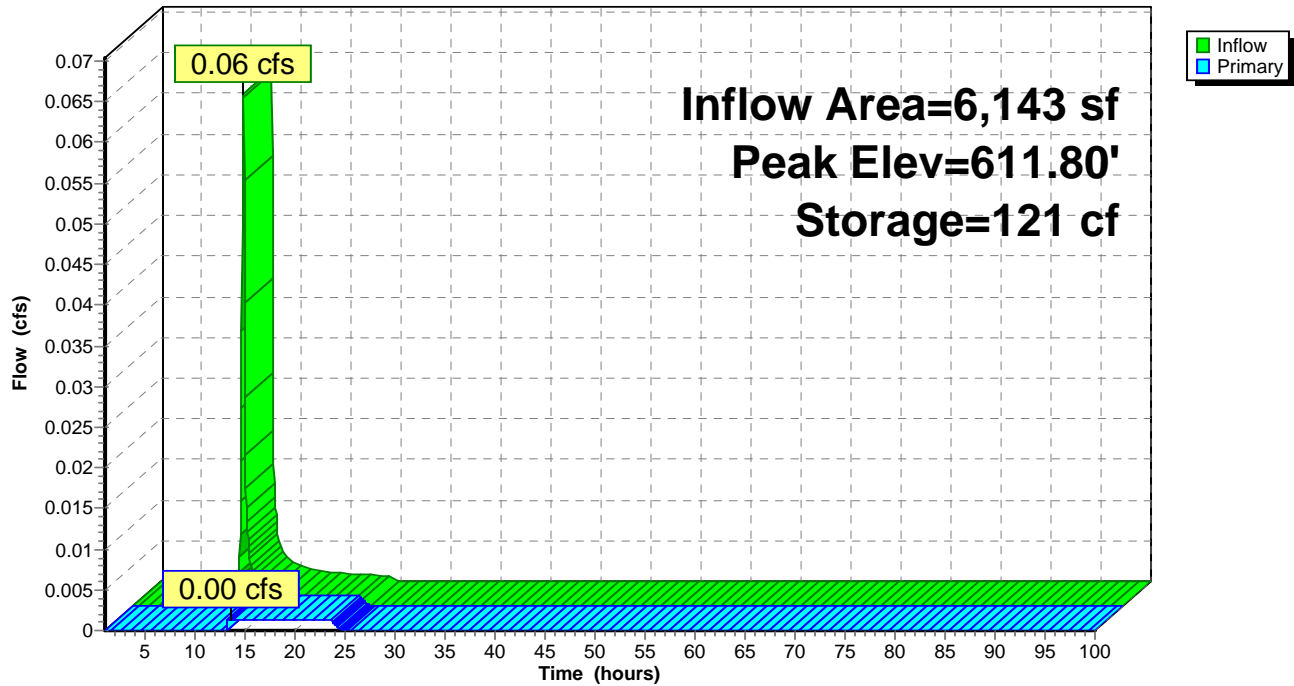
Device	Routing	Invert	Outlet Devices
#1	Primary	611.57'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.57' / 611.50' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.64'	<b>6.0" Round Culvert</b> L= 35.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 609.64' / 609.64' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	609.14'	<b>0.500 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.13'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 13.60 hrs HW=611.65' TW=610.50' (Dynamic Tailwater)

1=Culvert (Passes 0.00 cfs of 0.02 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 0.25 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 24: Planter PB-5B

Hydrograph



**Summary for Pond DS 25: DS 25**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=136)

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 0.10" for 75% event  
 Inflow = 0.00 cfs @ 13.60 hrs, Volume= 52 cf  
 Outflow = 0.00 cfs @ 23.35 hrs, Volume= 52 cf, Atten= 0%, Lag= 585.0 min  
 Primary = 0.00 cfs @ 23.35 hrs, Volume= 52 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

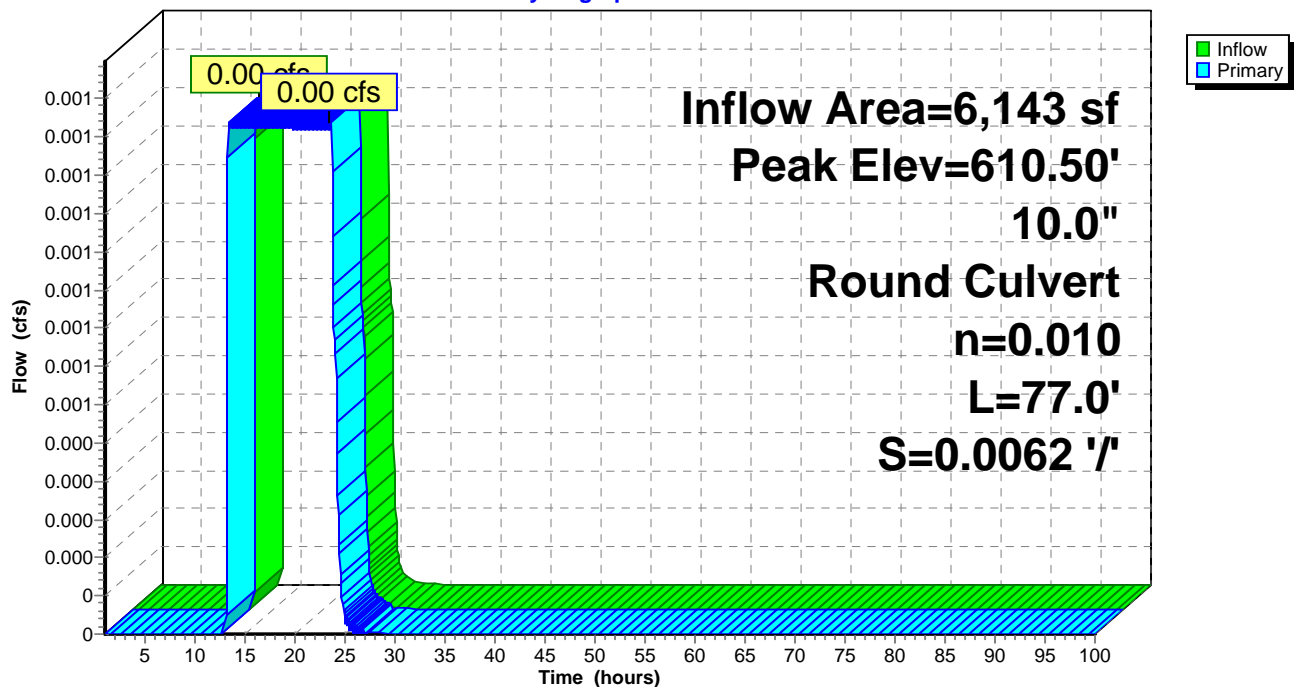
Peak Elev= 610.50' @ 23.35 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	610.48'	<b>10.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 610.48' / 610.00' S= 0.0062 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.00 cfs @ 23.35 hrs HW=610.50' TW=608.78' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.00 cfs @ 0.53 fps)

**Pond DS 25: DS 25****Hydrograph**

**Summary for Pond DS 31: Planter PB-6B**

Inflow Area = 3,043 sf, 95.60% Impervious, Inflow Depth = 0.26" for 75% event  
 Inflow = 0.03 cfs @ 12.04 hrs, Volume= 65 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 609.97' @ 24.70 hrs Surf.Area= 133 sf Storage= 65 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	608.75'	297 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.75	133	0.0	0	0
612.25	133	40.0	186	186
612.26	133	20.0	0	186
613.58	133	50.0	88	274
613.75	133	100.0	23	297

Device	Routing	Invert	Outlet Devices
#1	Primary	610.37'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.37' / 610.31' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.25'	<b>6.0" Round Culvert</b> L= 42.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.25' / 609.25' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.75'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.74'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

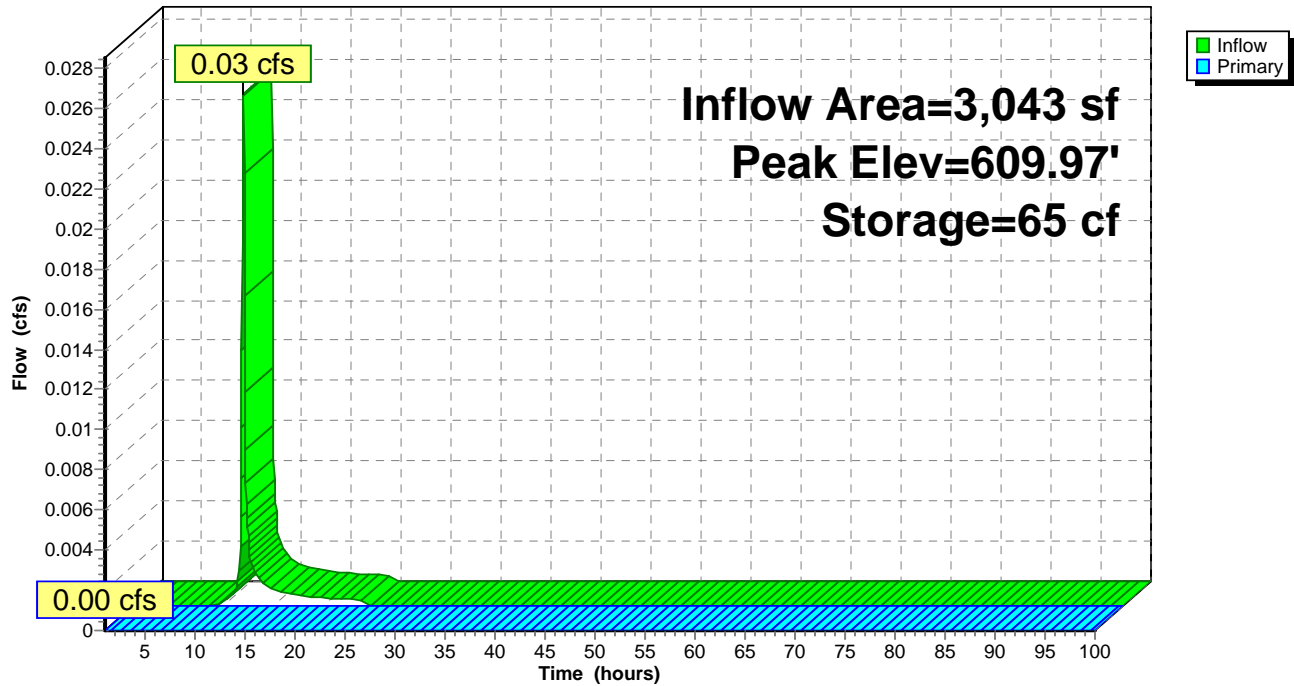
**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=608.75' TW=608.71' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)



## Pond DS 31: Planter PB-6B

Hydrograph



**Summary for Pond DS 32: DS 32**

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth = 0.22" for 75% event  
 Inflow = 0.23 cfs @ 12.04 hrs, Volume= 655 cf  
 Outflow = 0.23 cfs @ 12.04 hrs, Volume= 655 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.23 cfs @ 12.04 hrs, Volume= 655 cf

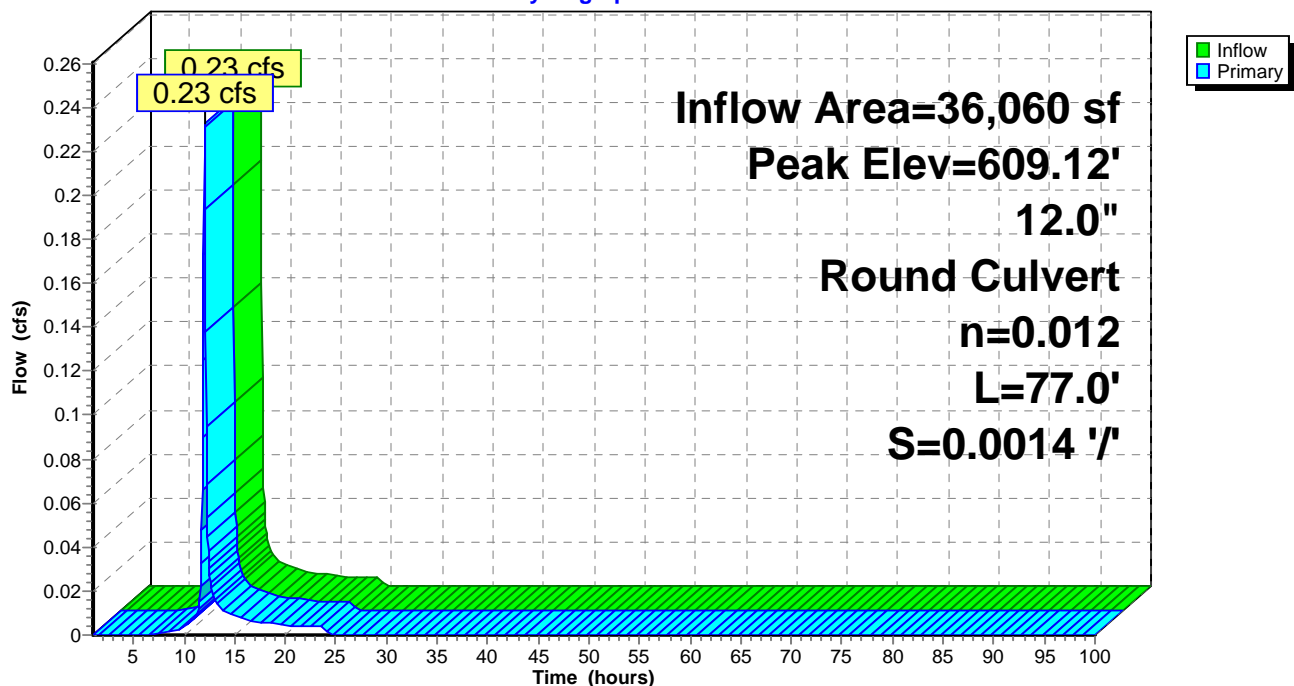
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.12' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.23 cfs @ 12.04 hrs HW=609.12' TW=609.03' (Dynamic Tailwater)  
 1=Culvert (Outlet Controls 0.23 cfs @ 1.11 fps)

**Pond DS 32: DS 32****Hydrograph**

**Genesee St Final**

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Type II 24-hr WQv Rainfall=0.85"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 10: Area 10</b>	Runoff Area=4,155 sf 97.18% Impervious Runoff Depth=0.57" Tc=12.0 min CN=97 Runoff=0.08 cfs 196 cf
<b>Subcatchment 10A: Area 10A</b>	Runoff Area=4,995 sf 100.00% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.10 cfs 269 cf
<b>Subcatchment 13: Area 13</b>	Runoff Area=6,143 sf 98.68% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.12 cfs 331 cf
<b>Subcatchment 14: Area 14</b>	Runoff Area=3,043 sf 95.60% Impervious Runoff Depth=0.57" Tc=12.0 min CN=97 Runoff=0.06 cfs 144 cf
<b>Subcatchment 14A: Area 14A</b>	Runoff Area=1,224 sf 100.00% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.02 cfs 66 cf
<b>Subcatchment 16A: Area 16a</b>	Runoff Area=7,954 sf 99.41% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.16 cfs 428 cf
<b>Subcatchment 19A: Area 19A</b>	Runoff Area=8,546 sf 100.00% Impervious Runoff Depth=0.65" Tc=12.0 min CN=98 Runoff=0.17 cfs 460 cf
<b>Pond 11P: Planter PB-3B</b>	Peak Elev=612.04' Storage=196 cf Inflow=0.08 cfs 196 cf Outflow=0.00 cfs 0 cf
<b>Pond 12P: DS 23</b>	Peak Elev=612.31' Inflow=0.10 cfs 269 cf 10.0" Round Culvert n=0.010 L=125.0' S=0.0043 '/' Outflow=0.10 cfs 269 cf
<b>Pond 15P: DS #2107</b>	Peak Elev=609.15' Inflow=0.46 cfs 1,505 cf 15.0" Round Culvert n=0.011 L=100.0' S=0.0011 '/' Outflow=0.46 cfs 1,506 cf
<b>Pond DS 24: Planter PB-5B</b>	Peak Elev=614.13' Storage=254 cf Inflow=0.12 cfs 331 cf Outflow=0.00 cfs 220 cf
<b>Pond DS 25: DS 25</b>	Peak Elev=610.51' Inflow=0.00 cfs 220 cf 10.0" Round Culvert n=0.010 L=77.0' S=0.0062 '/' Outflow=0.00 cfs 221 cf
<b>Pond DS 31: Planter PB-6B</b>	Peak Elev=610.80' Storage=109 cf Inflow=0.06 cfs 144 cf Outflow=0.00 cfs 57 cf
<b>Pond DS 32: DS 32</b>	Peak Elev=609.28' Inflow=0.46 cfs 1,503 cf 12.0" Round Culvert n=0.012 L=77.0' S=0.0014 '/' Outflow=0.46 cfs 1,505 cf

**Total Runoff Area = 36,060 sf Runoff Volume = 1,894 cf Average Runoff Depth = 0.63"**  
**1.05% Pervious = 379 sf 98.95% Impervious = 35,681 sf**

**Summary for Subcatchment 10: Area 10**

Runoff = 0.08 cfs @ 12.04 hrs, Volume= 196 cf, Depth= 0.57"

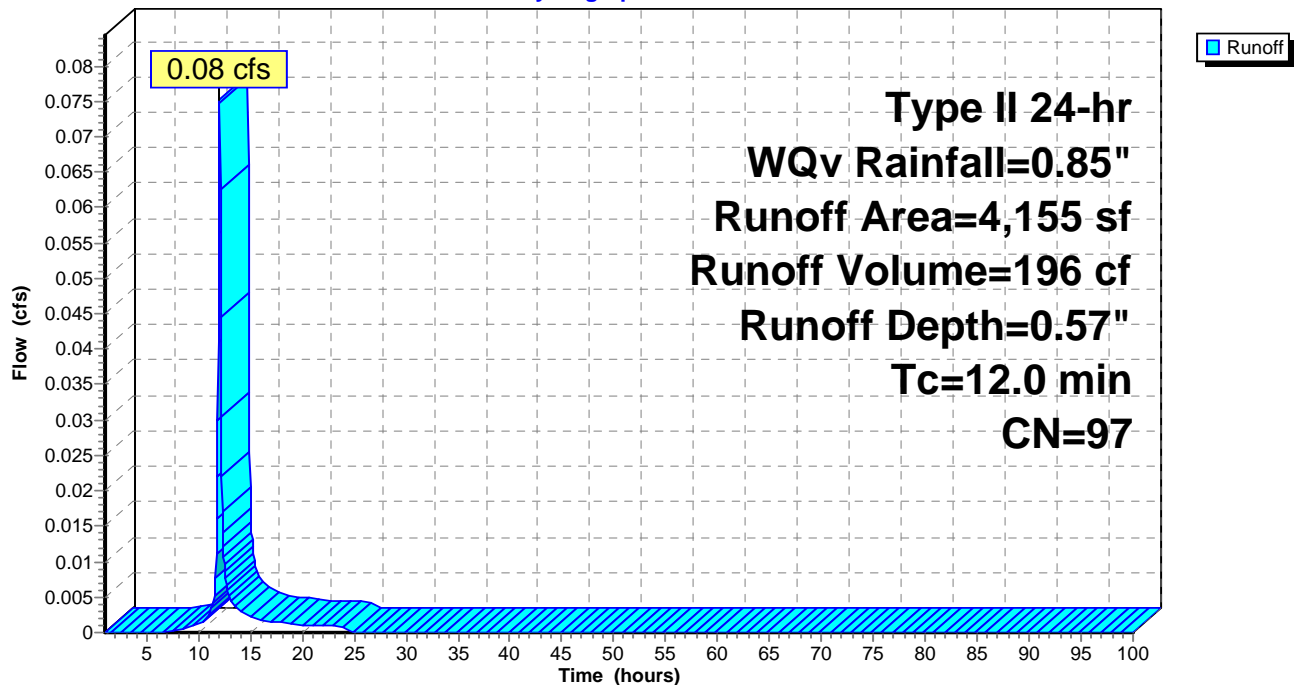
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
117	80	>75% Grass cover, Good, HSG D
4,038	98	Paved parking, HSG D
4,155	97	Weighted Average
117		2.82% Pervious Area
4,038		97.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 10: Area 10**

Hydrograph



**Summary for Subcatchment 10A: Area 10A**

Runoff = 0.10 cfs @ 12.03 hrs, Volume= 269 cf, Depth= 0.65"

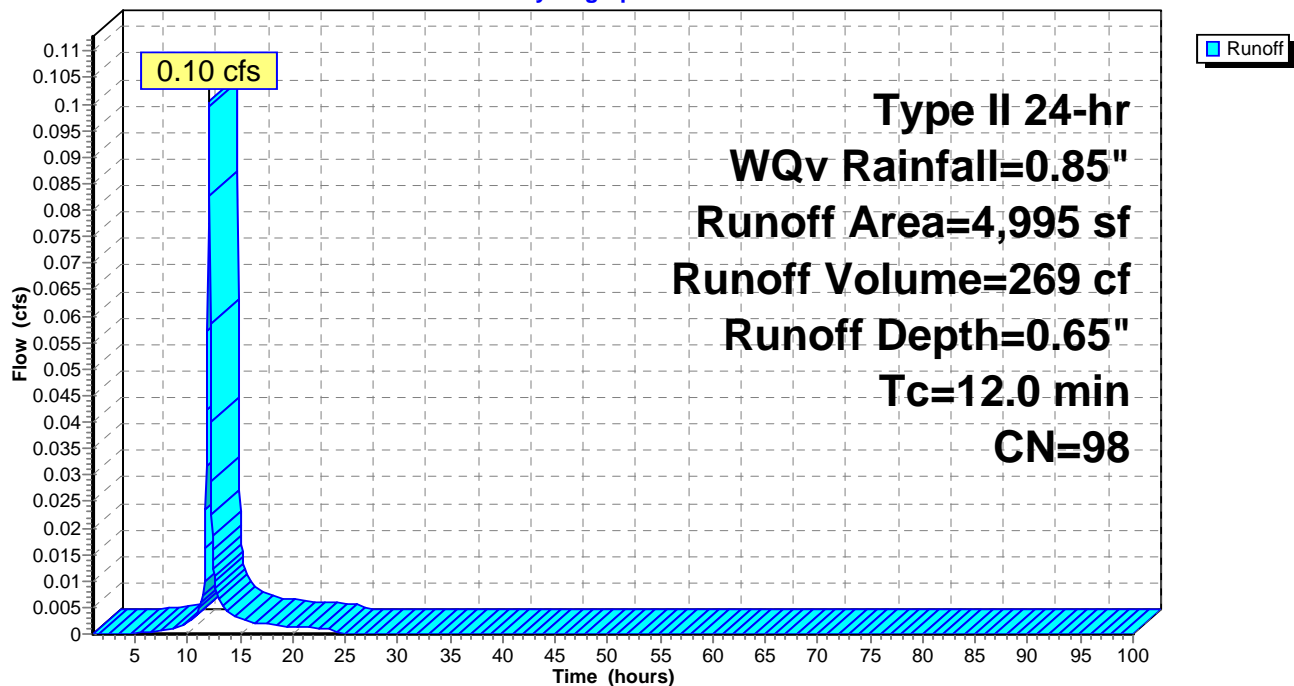
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
4,995	98	Paved parking, HSG D
4,995		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 10A: Area 10A**

Hydrograph



**Summary for Subcatchment 13: Area 13**

Runoff = 0.12 cfs @ 12.03 hrs, Volume= 331 cf, Depth= 0.65"

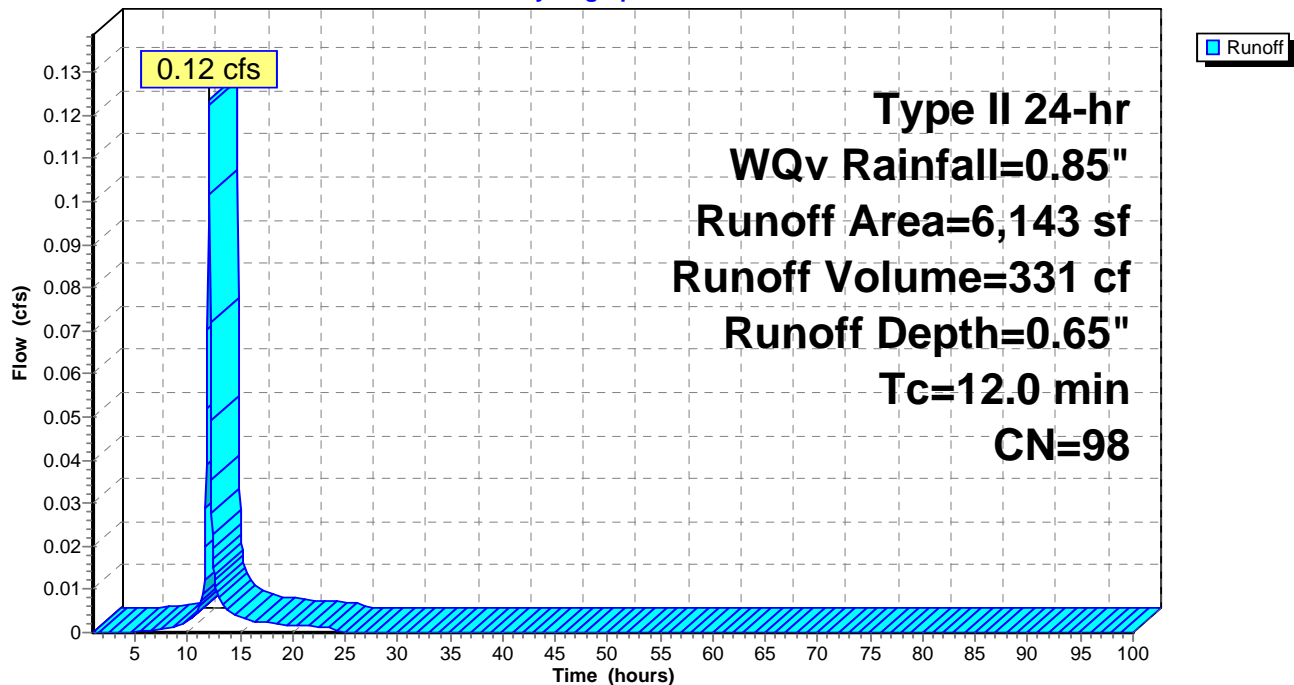
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
81	80	>75% Grass cover, Good, HSG D
6,062	98	Paved parking, HSG D
6,143	98	Weighted Average
81		1.32% Pervious Area
6,062		98.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 13: Area 13**

Hydrograph



**Summary for Subcatchment 14: Area 14**

Runoff = 0.06 cfs @ 12.04 hrs, Volume= 144 cf, Depth= 0.57"

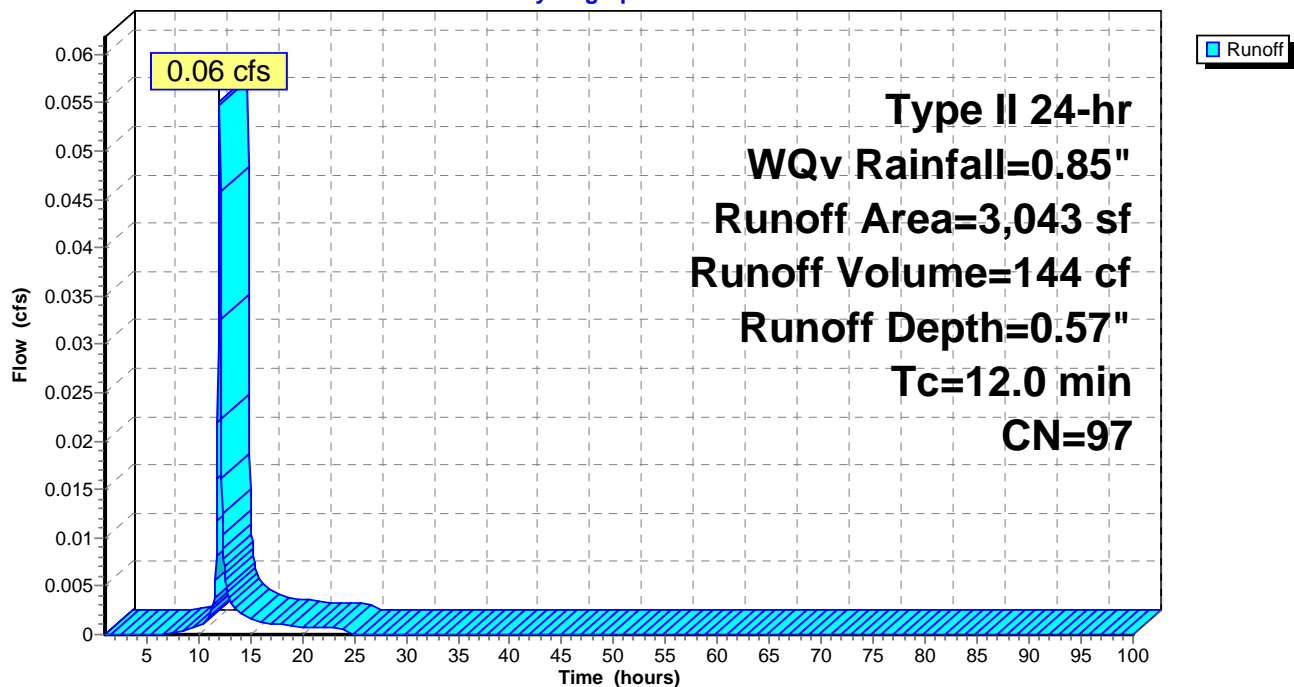
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
134	80	>75% Grass cover, Good, HSG D
2,909	98	Paved parking, HSG D
3,043	97	Weighted Average
134		4.40% Pervious Area
2,909		95.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 14: Area 14**

Hydrograph



**Summary for Subcatchment 14A: Area 14A**

Runoff = 0.02 cfs @ 12.03 hrs, Volume= 66 cf, Depth= 0.65"

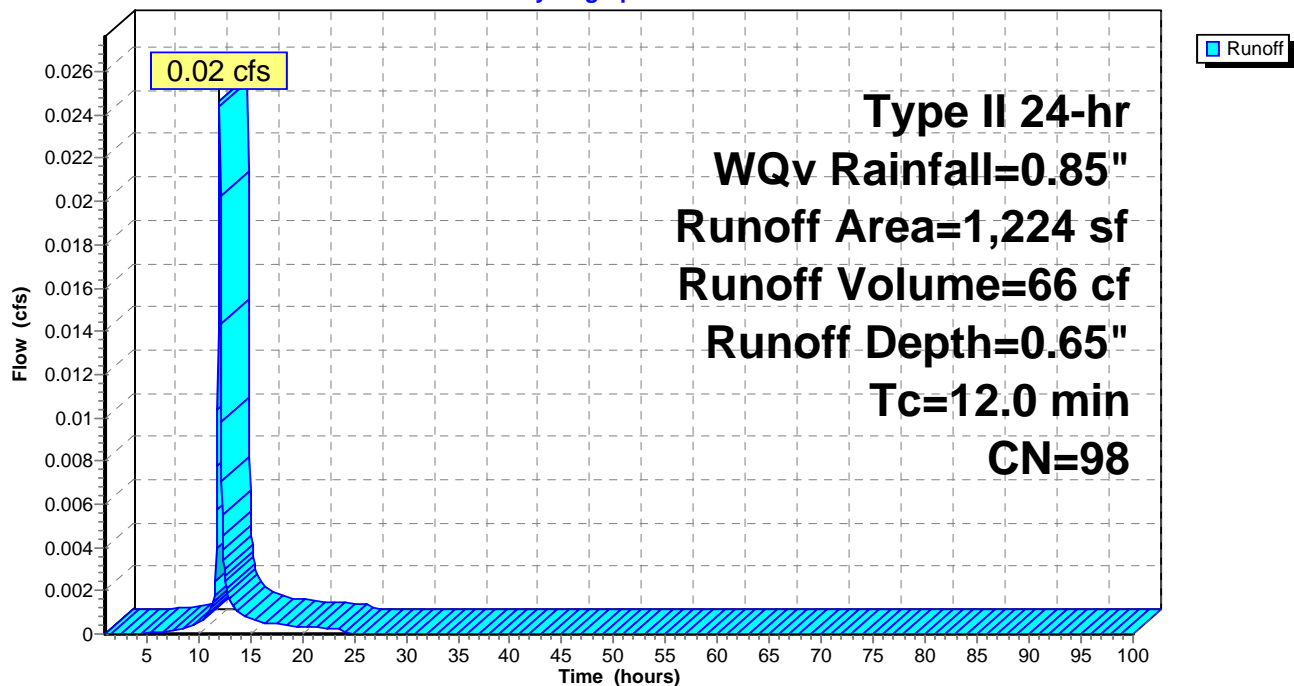
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
1,224	98	Paved parking, HSG D
1,224		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 14A: Area 14A**

Hydrograph





**Summary for Subcatchment 16A: Area 16a**

Runoff = 0.16 cfs @ 12.03 hrs, Volume= 428 cf, Depth= 0.65"

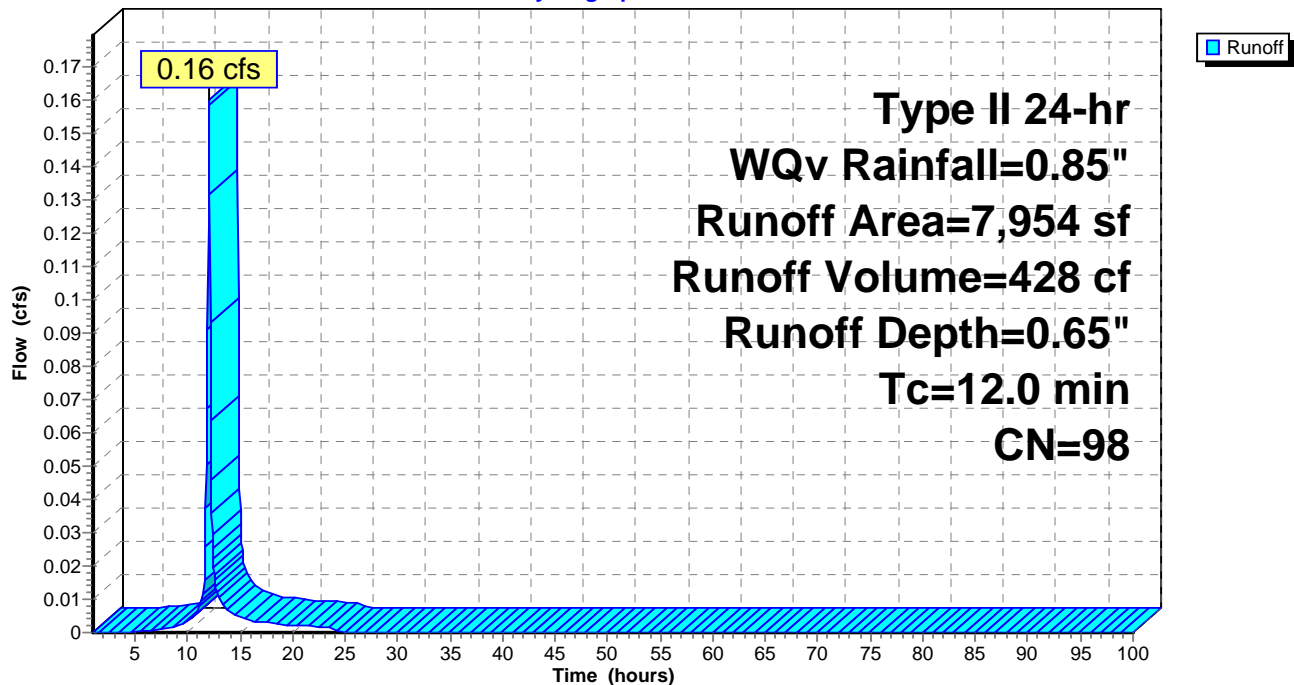
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
47	80	>75% Grass cover, Good, HSG D
7,907	98	Paved parking, HSG D
7,954	98	Weighted Average
47		0.59% Pervious Area
7,907		99.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 16A: Area 16a**

Hydrograph



**Summary for Subcatchment 19A: Area 19A**

Runoff = 0.17 cfs @ 12.03 hrs, Volume= 460 cf, Depth= 0.65"

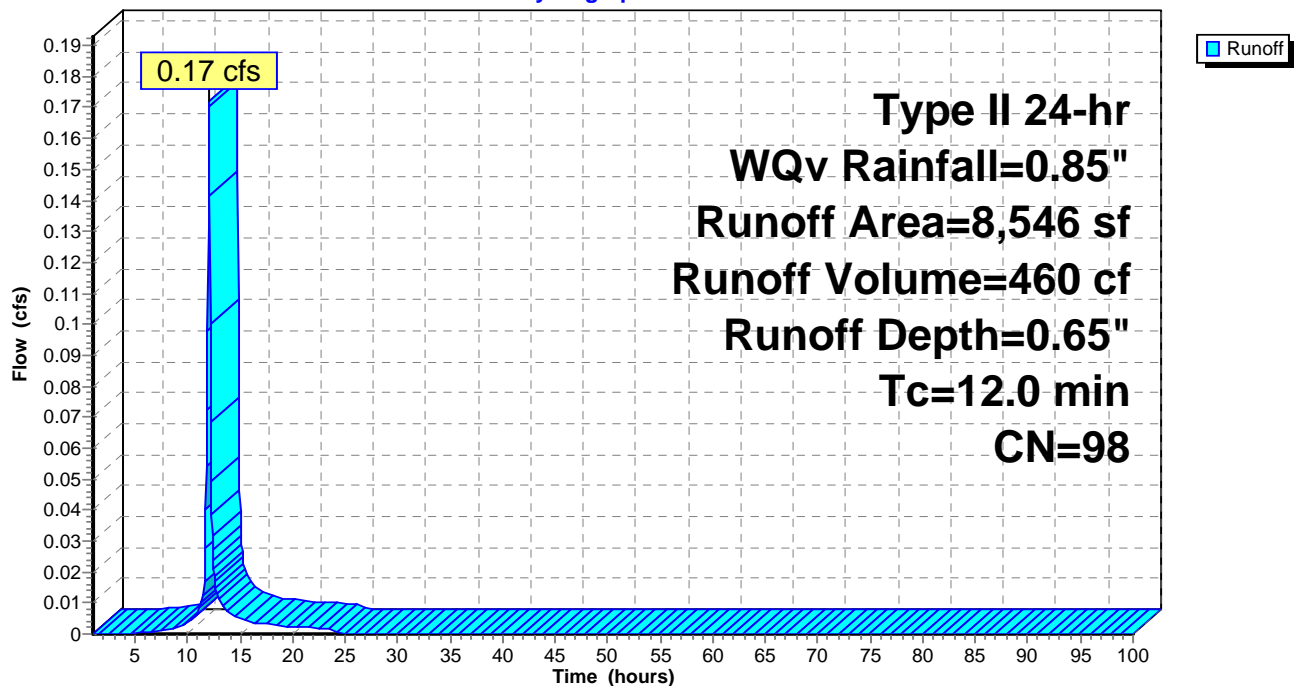
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
8,546	98	Paved parking, HSG D
8,546		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 19A: Area 19A**

Hydrograph



**Summary for Pond 11P: Planter PB-3B**

Inflow Area = 4,155 sf, 97.18% Impervious, Inflow Depth = 0.57" for WQv event  
 Inflow = 0.08 cfs @ 12.04 hrs, Volume= 196 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 612.04' @ 24.70 hrs Surf.Area= 254 sf Storage= 196 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	610.11'	567 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
610.11	254	0.0	0	0
613.61	254	40.0	356	356
613.62	254	20.0	1	356
614.94	254	50.0	168	524
615.11	254	100.0	43	567

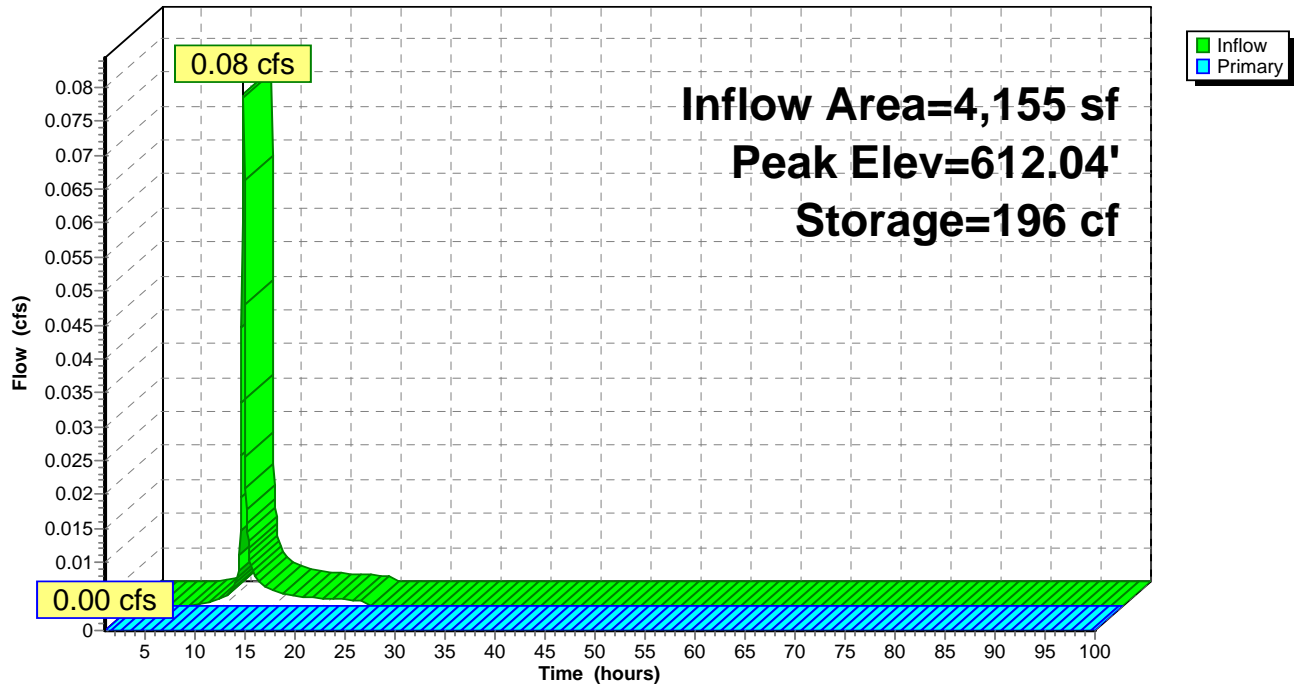
Device	Routing	Invert	Outlet Devices
#1	Primary	612.67'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 612.67' / 612.60' S= 0.0117 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	610.61'	<b>6.0" Round Culvert</b> L= 47.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 610.61' / 610.61' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	610.11'	<b>0.100 in/hr Exfiltration over Surface area</b>
#4	Device 1	615.10'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=610.11' TW=612.13' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

**Pond 11P: Planter PB-3B**

Hydrograph



**Summary for Pond 12P: DS 23**

Inflow Area = 9,150 sf, 98.72% Impervious, Inflow Depth = 0.35" for WQv event  
 Inflow = 0.10 cfs @ 12.03 hrs, Volume= 269 cf  
 Outflow = 0.10 cfs @ 12.03 hrs, Volume= 269 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.10 cfs @ 12.03 hrs, Volume= 269 cf

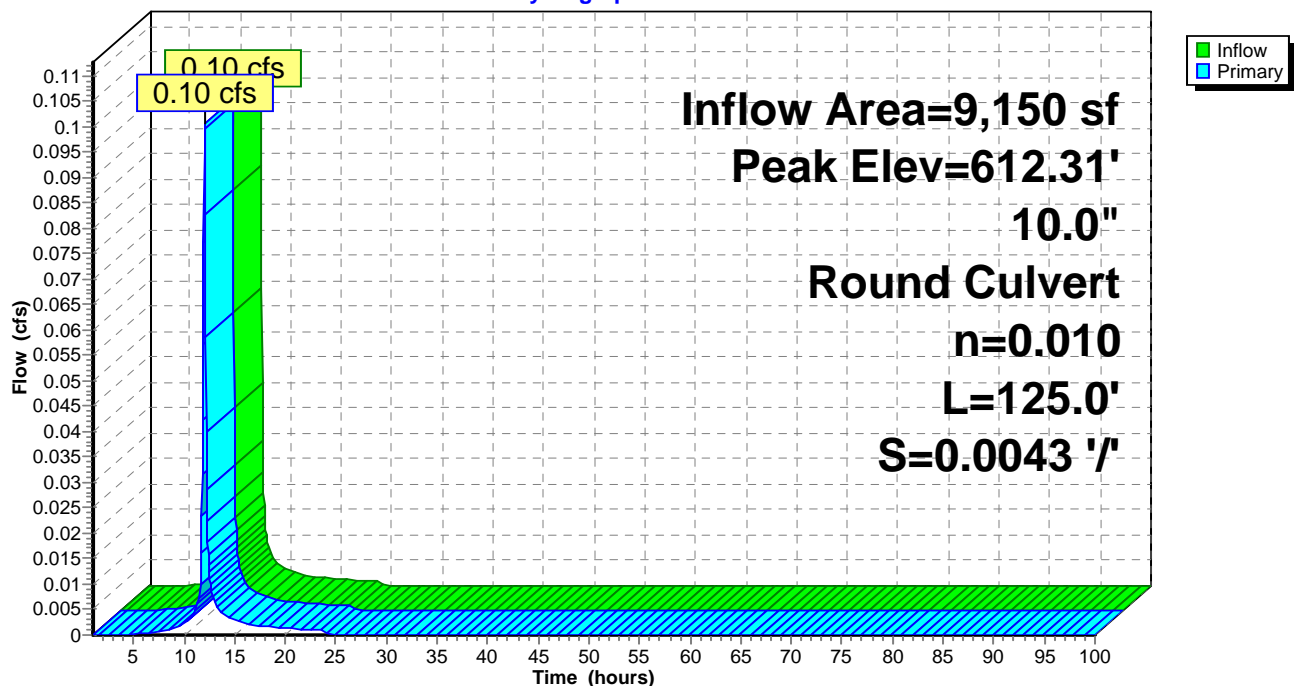
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 612.31' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	612.13'	<b>10.0" Round Culvert</b> L= 125.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 612.13' / 611.59' S= 0.0043 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.10 cfs @ 12.03 hrs HW=612.31' TW=609.27' (Dynamic Tailwater)  
 ↳ **1=Culvert** (Barrel Controls 0.10 cfs @ 1.78 fps)

**Pond 12P: DS 23****Hydrograph**

**Summary for Pond 15P: DS #2107**

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth = 0.50" for WQv event  
 Inflow = 0.46 cfs @ 12.03 hrs, Volume= 1,505 cf  
 Outflow = 0.46 cfs @ 12.03 hrs, Volume= 1,506 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.46 cfs @ 12.03 hrs, Volume= 1,506 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

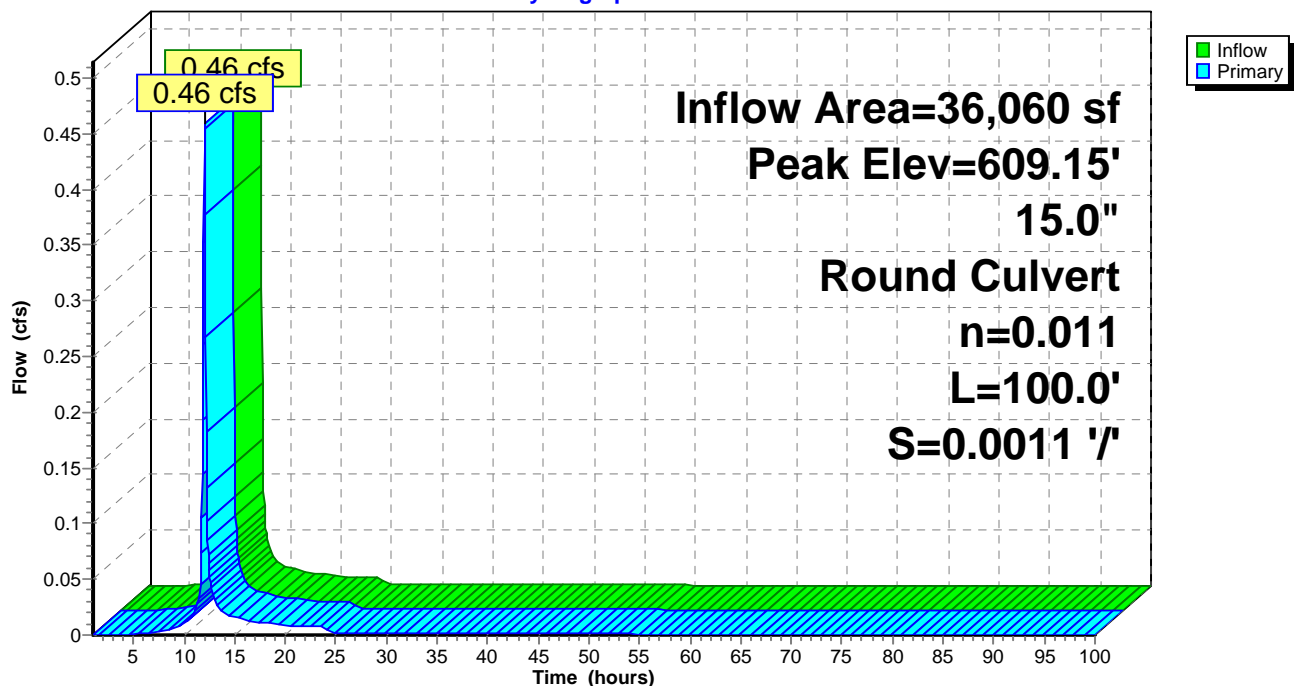
Peak Elev= 609.15' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>15.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0011 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 1.23 sf

**Primary OutFlow** Max=0.45 cfs @ 12.03 hrs HW=609.15' (Free Discharge)

1=Culvert (Barrel Controls 0.45 cfs @ 1.74 fps)

**Pond 15P: DS #2107****Hydrograph**

**Summary for Pond DS 24: Planter PB-5B**

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 0.65" for WQv event  
 Inflow = 0.12 cfs @ 12.03 hrs, Volume= 331 cf  
 Outflow = 0.00 cfs @ 15.11 hrs, Volume= 220 cf, Atten= 97%, Lag= 184.8 min  
 Primary = 0.00 cfs @ 15.11 hrs, Volume= 220 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 614.13' @ 15.10 hrs Surf.Area= 114 sf Storage= 254 cf

Plug-Flow detention time= 1,203.9 min calculated for 220 cf (67% of inflow)  
 Center-of-Mass det. time= 1,103.7 min ( 1,899.4 - 795.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	609.14'	254 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
609.14	114	0.0	0	0
612.64	114	40.0	160	160
612.65	114	20.0	0	160
613.97	114	50.0	75	235
614.14	114	100.0	19	254

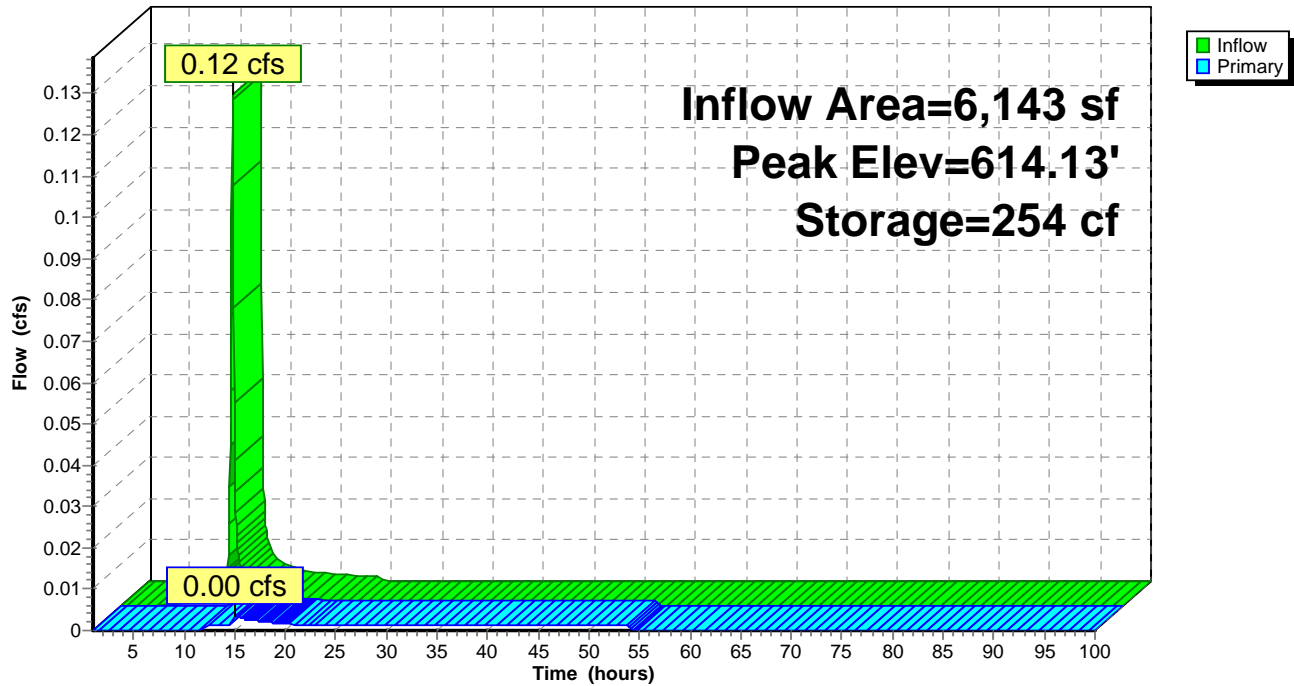
Device	Routing	Invert	Outlet Devices
#1	Primary	611.57'	<b>6.0" Round Culvert</b> L= 6.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 611.57' / 611.50' S= 0.0117 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.64'	<b>6.0" Round Culvert</b> L= 35.0' CMP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 609.64' / 609.64' S= 0.0000 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	609.14'	<b>0.500 in/hr Exfiltration over Surface area</b>
#4	Device 1	614.13'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 15.11 hrs HW=614.13' TW=610.51' (Dynamic Tailwater)

1=Culvert (Passes 0.00 cfs of 1.44 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.42 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.00 cfs @ 0.14 fps)

Pond DS 24: Planter PB-5B

Hydrograph





## Summary for Pond DS 25: DS 25

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=280)

Inflow Area = 6,143 sf, 98.68% Impervious, Inflow Depth = 0.43" for WQv event  
 Inflow = 0.00 cfs @ 15.11 hrs, Volume= 220 cf  
 Outflow = 0.00 cfs @ 15.11 hrs, Volume= 221 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 15.11 hrs, Volume= 221 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 610.51' @ 15.10 hrs

Flood Elev= 647.22'

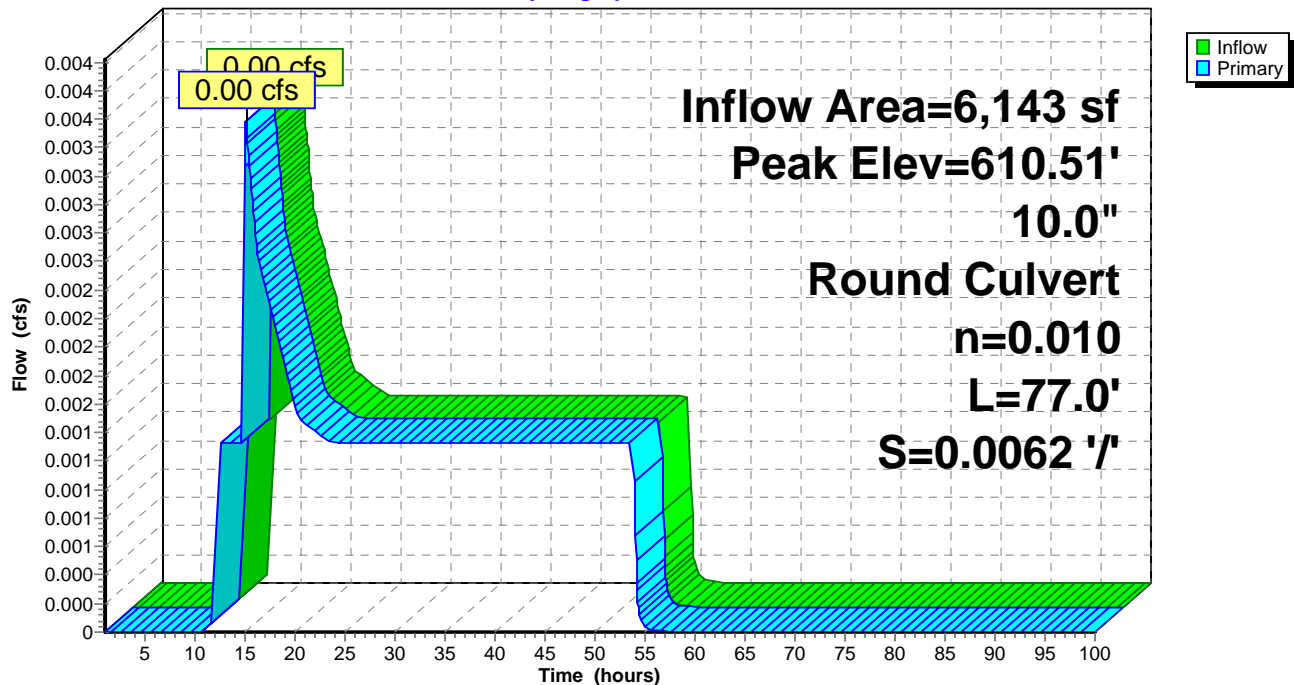
Device	Routing	Invert	Outlet Devices
#1	Primary	610.48'	<b>10.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 610.48' / 610.00' S= 0.0062 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.55 sf

**Primary OutFlow** Max=0.00 cfs @ 15.11 hrs HW=610.51' TW=608.84' (Dynamic Tailwater)

1=Culvert (Barrel Controls 0.00 cfs @ 0.75 fps)

## Pond DS 25: DS 25

## Hydrograph



**Summary for Pond DS 31: Planter PB-6B**

Inflow Area = 3,043 sf, 95.60% Impervious, Inflow Depth = 0.57" for WQv event  
 Inflow = 0.06 cfs @ 12.04 hrs, Volume= 144 cf  
 Outflow = 0.00 cfs @ 12.50 hrs, Volume= 57 cf, Atten= 98%, Lag= 27.9 min  
 Primary = 0.00 cfs @ 12.50 hrs, Volume= 57 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 610.80' @ 18.61 hrs Surf.Area= 133 sf Storage= 109 cf

Plug-Flow detention time= 577.5 min calculated for 57 cf (40% of inflow)  
 Center-of-Mass det. time= 455.5 min ( 1,266.7 - 811.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	608.75'	297 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.75	133	0.0	0	0
612.25	133	40.0	186	186
612.26	133	20.0	0	186
613.58	133	50.0	88	274
613.75	133	100.0	23	297

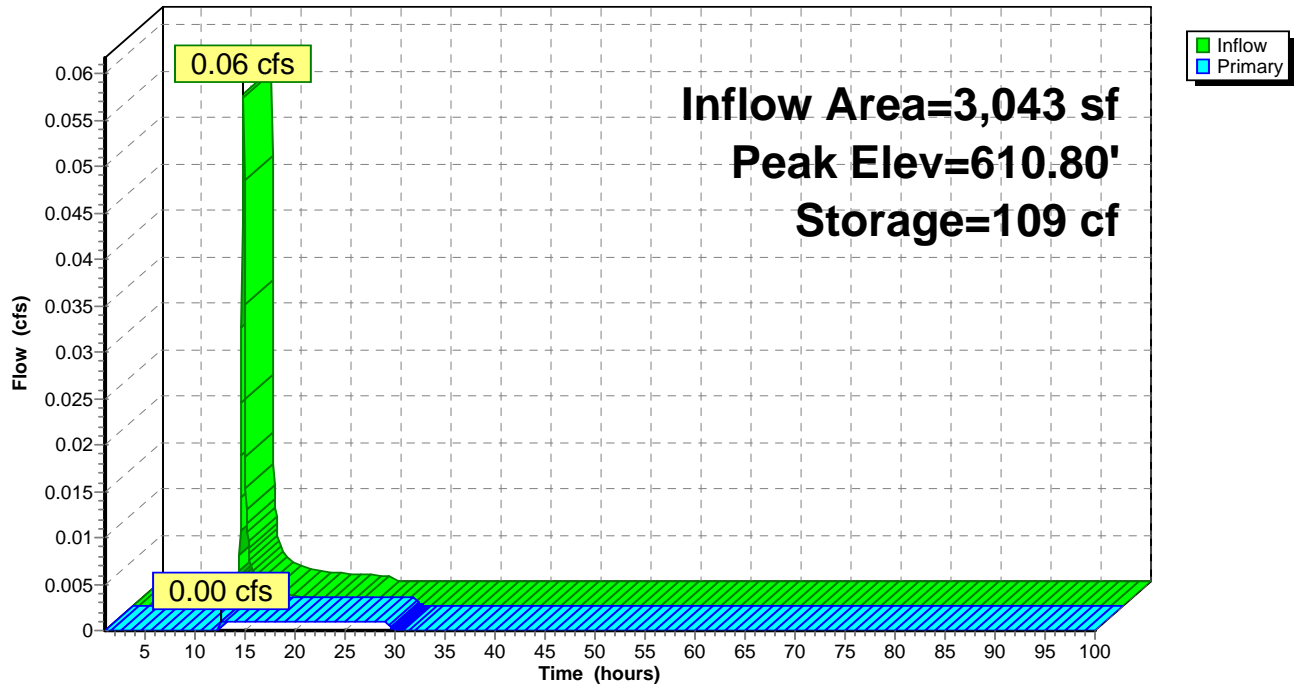
Device	Routing	Invert	Outlet Devices
#1	Primary	610.37'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 610.37' / 610.31' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	609.25'	<b>6.0" Round Culvert</b> L= 42.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.25' / 609.25' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.75'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.74'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 12.50 hrs HW=610.40' TW=608.93' (Dynamic Tailwater)

1=Culvert (Passes 0.00 cfs of 0.00 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 0.16 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate ( Controls 0.00 cfs)

**Pond DS 31: Planter PB-6B**

Hydrograph



**Summary for Pond DS 32: DS 32**

Inflow Area = 36,060 sf, 98.95% Impervious, Inflow Depth = 0.50" for WQv event  
 Inflow = 0.46 cfs @ 12.03 hrs, Volume= 1,503 cf  
 Outflow = 0.46 cfs @ 12.03 hrs, Volume= 1,505 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.46 cfs @ 12.03 hrs, Volume= 1,505 cf

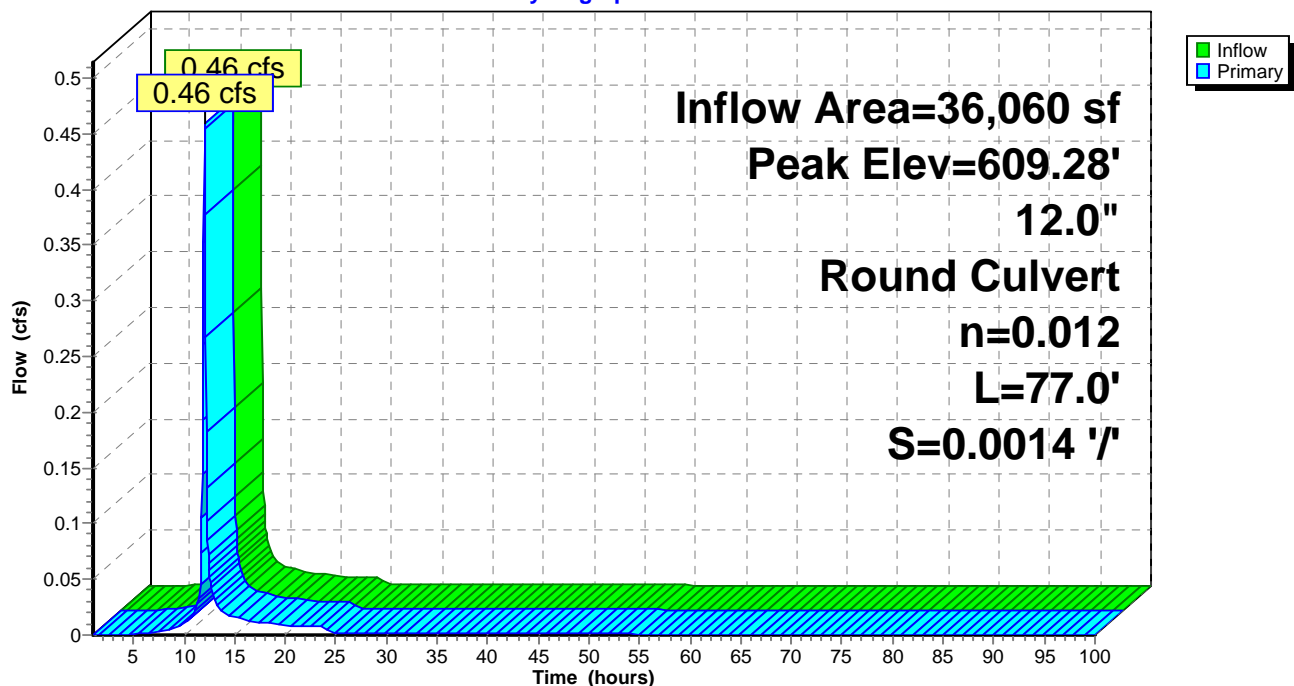
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.28' @ 12.03 hrs

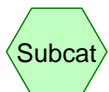
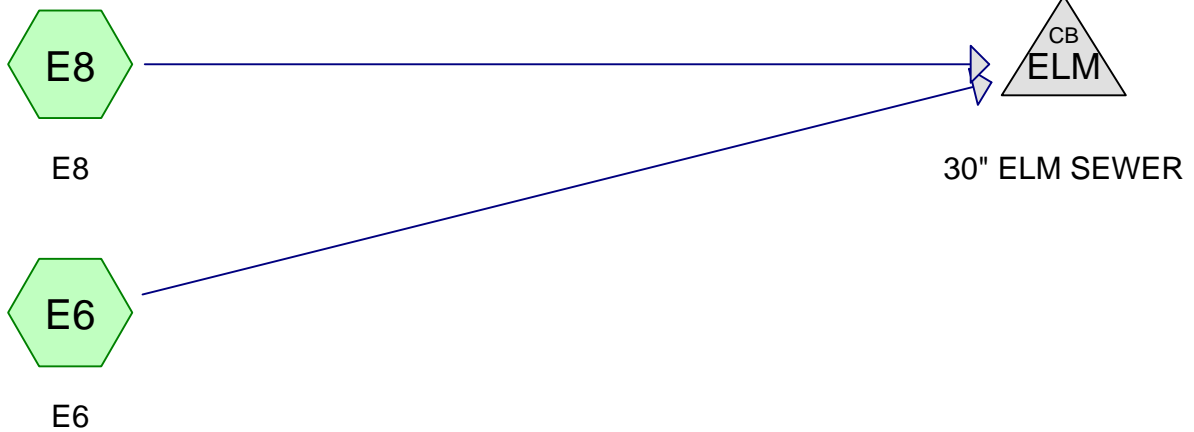
Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.71'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.71' / 608.60' S= 0.0014 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.45 cfs @ 12.03 hrs HW=609.27' TW=609.15' (Dynamic Tailwater)  
 1=Culvert (Outlet Controls 0.45 cfs @ 1.43 fps)

**Pond DS 32: DS 32****Hydrograph**

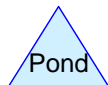
EXISTING GENESEE  
ST - TO ELM ST  
SEWER



Subcat



Reach



Pond



Link

**Routing Diagram for Genesee St Final**

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## Genesee St Final

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### Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
30,342	98	Paved parking, HSG D (E6, E8)
<b>30,342</b>	<b>98</b>	<b>TOTAL AREA</b>

## Genesee St Final

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### Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
30,342	HSG D	E6, E8
0	Other	
<b>30,342</b>		<b>TOTAL AREA</b>

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**Ground Covers (selected nodes)**

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Subcatchment Numbers
0	0	0	30,342	0	30,342	Paved parking	E 6, E 8
<b>0</b>	<b>0</b>	<b>0</b>	<b>30,342</b>	<b>0</b>	<b>30,342</b>	<b>TOTAL AREA</b>	



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**Pipe Listing (selected nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	ELM	600.50	600.00	100.0	0.0050	0.015	30.0	0.0	0.0

**Genesee St Final***Type II 24-hr 2 YR Rainfall=2.25"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E6: E6**

Runoff Area=17,099 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=1.01 cfs 2,882 cf

**Subcatchment E8: E8**

Runoff Area=13,243 sf 100.00% Impervious Runoff Depth=2.02"

Tc=12.0 min CN=98 Runoff=0.78 cfs 2,232 cf

**Pond ELM: 30" ELM SEWER**

Peak Elev=601.12' Inflow=1.79 cfs 5,114 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=1.79 cfs 5,114 cf

**Total Runoff Area = 30,342 sf   Runoff Volume = 5,114 cf   Average Runoff Depth = 2.02"**  
**0.00% Pervious = 0 sf   100.00% Impervious = 30,342 sf**

**Summary for Subcatchment E6: E6**

Runoff = 1.01 cfs @ 12.03 hrs, Volume= 2,882 cf, Depth= 2.02"

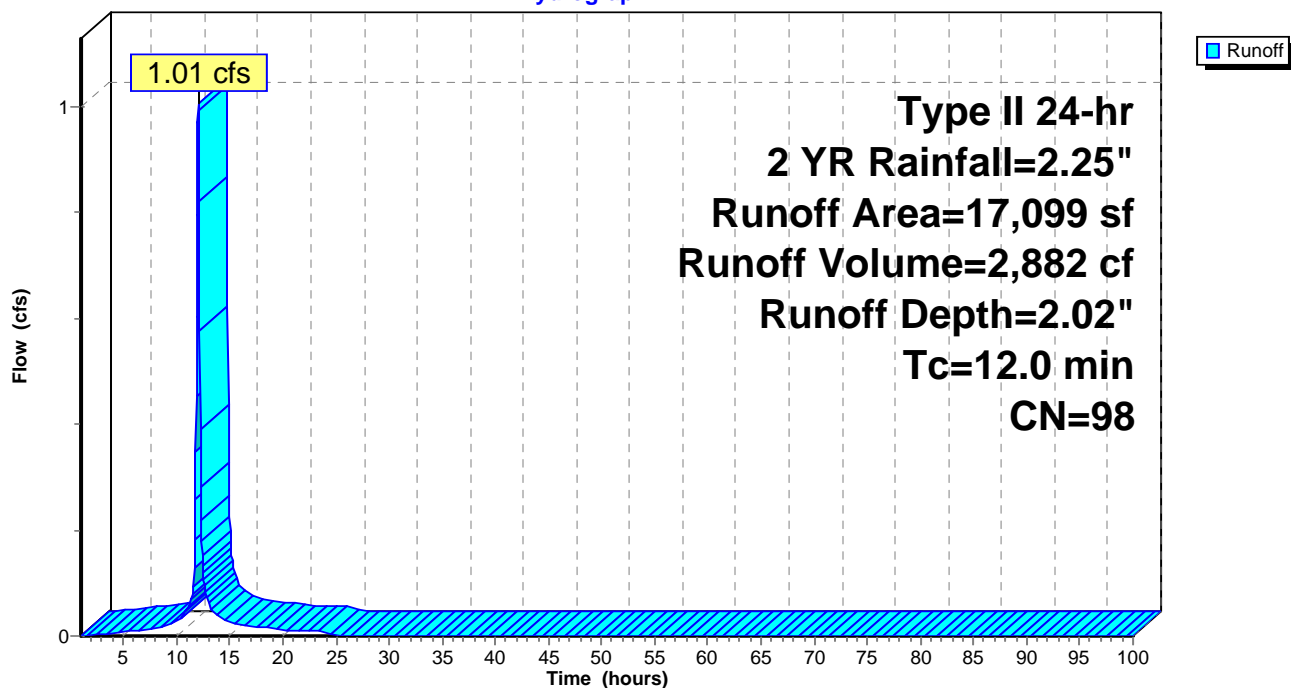
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
17,099	98	Paved parking, HSG D
17,099		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E6: E6**

Hydrograph



**Summary for Subcatchment E8: E8**

Runoff = 0.78 cfs @ 12.03 hrs, Volume= 2,232 cf, Depth= 2.02"

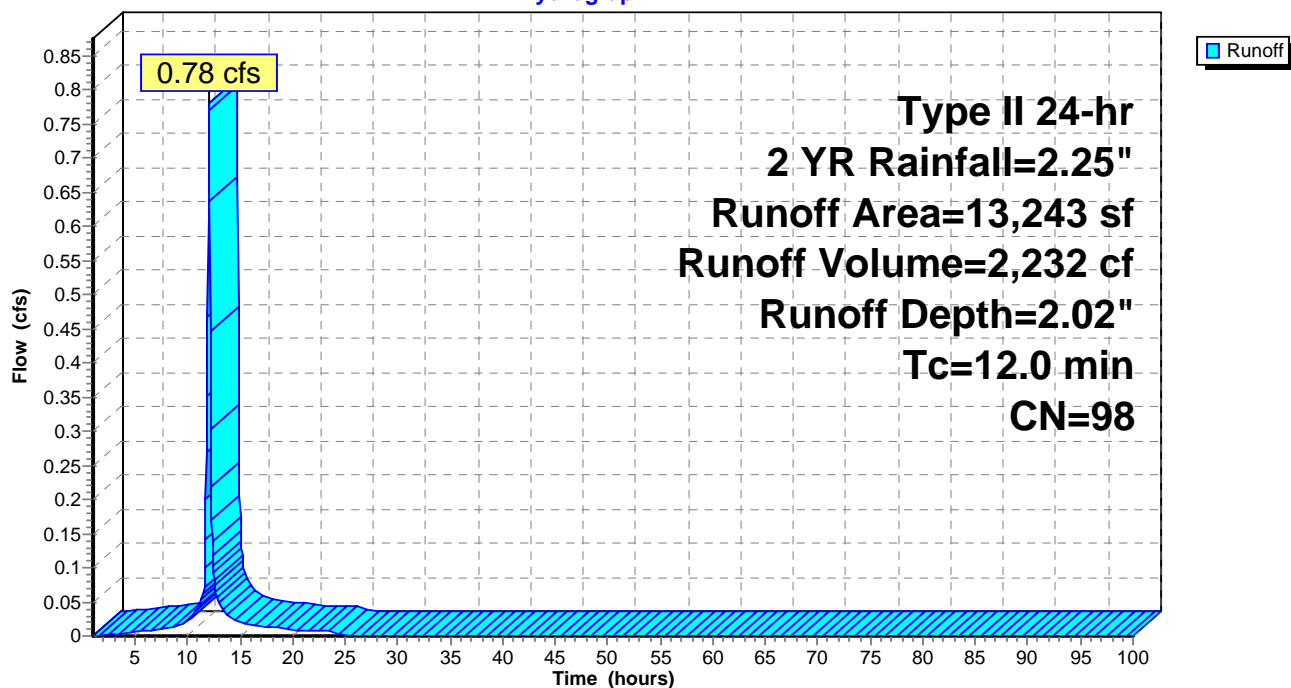
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
13,243	98	Paved parking, HSG D
13,243		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E8: E8**

Hydrograph



**Summary for Pond ELM: 30" ELM SEWER**

Inflow Area = 30,342 sf, 100.00% Impervious, Inflow Depth = 2.02" for 2 YR event  
 Inflow = 1.79 cfs @ 12.03 hrs, Volume= 5,114 cf  
 Outflow = 1.79 cfs @ 12.03 hrs, Volume= 5,114 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.79 cfs @ 12.03 hrs, Volume= 5,114 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

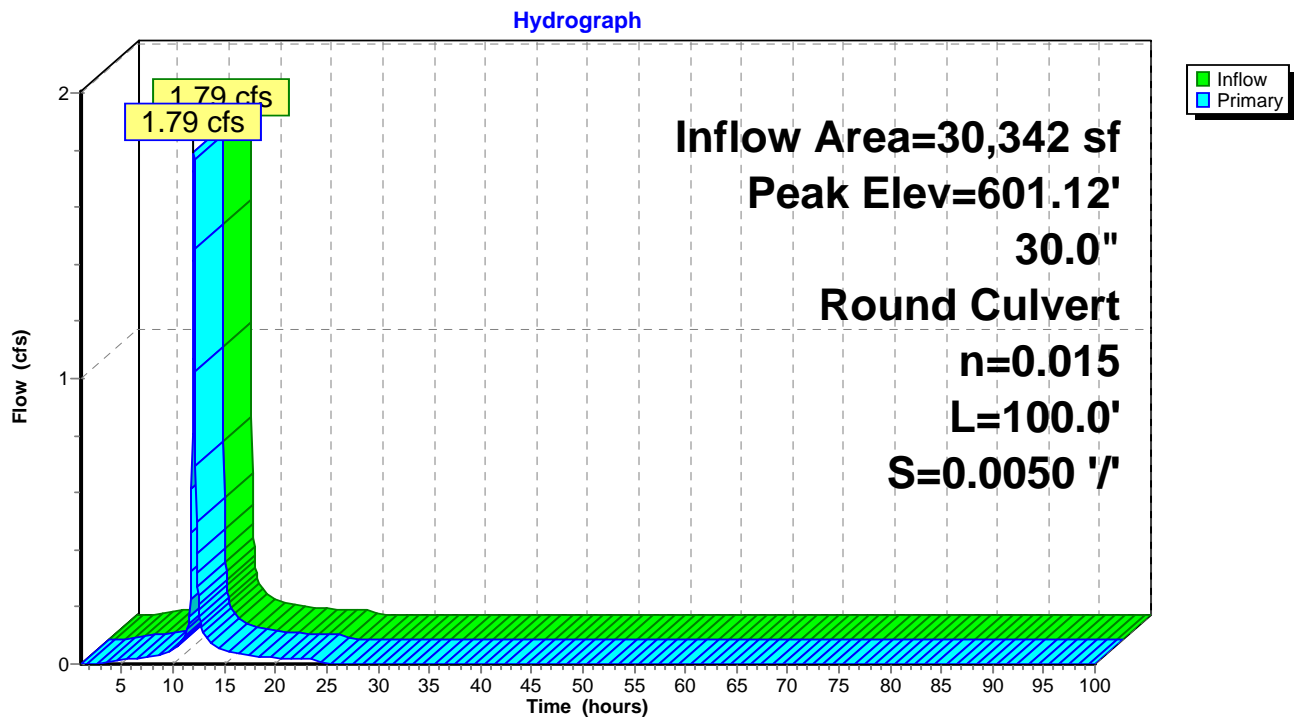
Peak Elev= 601.12' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	<b>30.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 4.91 sf

**Primary OutFlow** Max=1.75 cfs @ 12.03 hrs HW=601.11' (Free Discharge)

1=Culvert (Barrel Controls 1.75 cfs @ 2.86 fps)

**Pond ELM: 30" ELM SEWER**

**Genesee St Final***Type II 24-hr 25 Year Rainfall=4.00"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E6: E6**

Runoff Area=17,099 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=1.82 cfs 5,365 cf

**Subcatchment E8: E8**

Runoff Area=13,243 sf 100.00% Impervious Runoff Depth=3.77"

Tc=12.0 min CN=98 Runoff=1.41 cfs 4,155 cf

**Pond ELM: 30" ELM SEWER**

Peak Elev=601.33' Inflow=3.24 cfs 9,520 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=3.24 cfs 9,520 cf

**Total Runoff Area = 30,342 sf   Runoff Volume = 9,520 cf   Average Runoff Depth = 3.77"**  
**0.00% Pervious = 0 sf   100.00% Impervious = 30,342 sf**

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Type II 24-hr 25 Year Rainfall=4.00"

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**Summary for Subcatchment E6: E6**

Runoff = 1.82 cfs @ 12.03 hrs, Volume= 5,365 cf, Depth= 3.77"

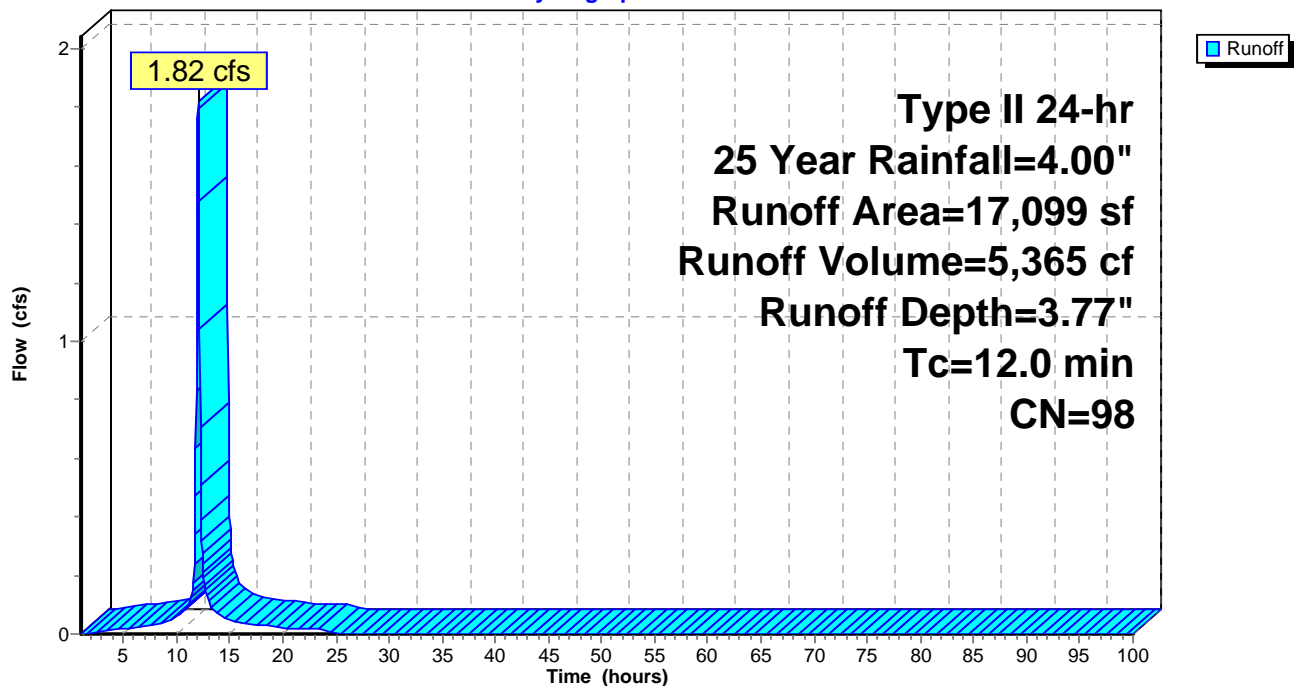
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
17,099	98	Paved parking, HSG D
17,099		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E6: E6**

Hydrograph



**Summary for Subcatchment E8: E8**

Runoff = 1.41 cfs @ 12.03 hrs, Volume= 4,155 cf, Depth= 3.77"

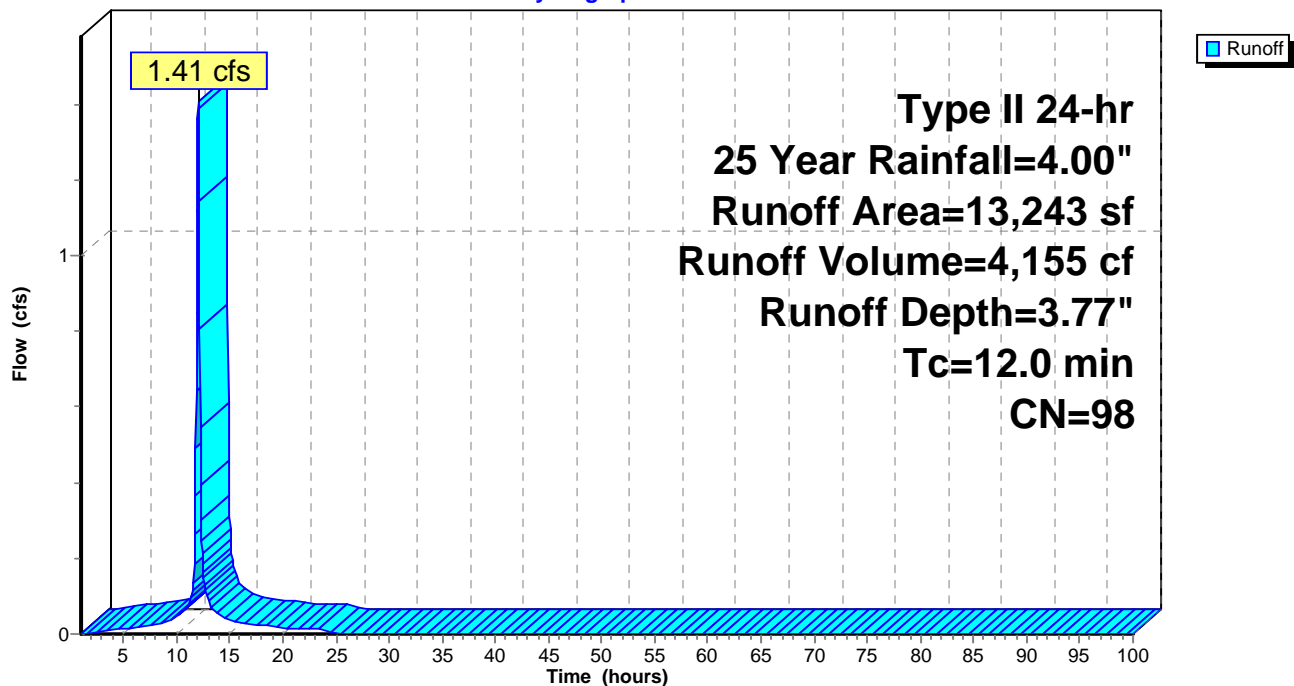
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
13,243	98	Paved parking, HSG D
13,243		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E8: E8**

Hydrograph





**Summary for Pond ELM: 30" ELM SEWER**

Inflow Area = 30,342 sf, 100.00% Impervious, Inflow Depth = 3.77" for 25 Year event  
 Inflow = 3.24 cfs @ 12.03 hrs, Volume= 9,520 cf  
 Outflow = 3.24 cfs @ 12.03 hrs, Volume= 9,520 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 3.24 cfs @ 12.03 hrs, Volume= 9,520 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 601.33' @ 12.03 hrs

Flood Elev= 647.22'

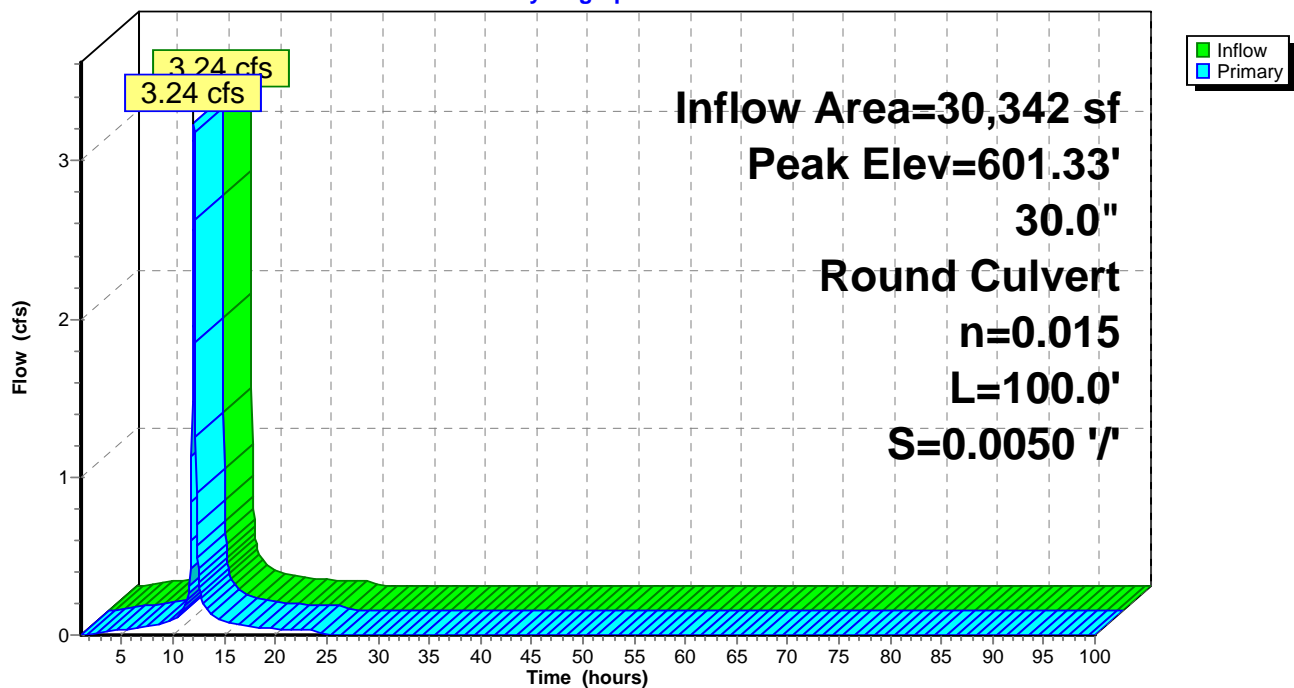
Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	<b>30.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 4.91 sf

**Primary OutFlow** Max=3.16 cfs @ 12.03 hrs HW=601.33' (Free Discharge)

1=Culvert (Barrel Controls 3.16 cfs @ 3.35 fps)

**Pond ELM: 30" ELM SEWER**

Hydrograph



**Genesee St Final***Type II 24-hr 50% Rainfall=0.35"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E6: E6**

Runoff Area=17,099 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.10 cfs 265 cf

**Subcatchment E8: E8**

Runoff Area=13,243 sf 100.00% Impervious Runoff Depth=0.19"

Tc=12.0 min CN=98 Runoff=0.08 cfs 206 cf

**Pond ELM: 30" ELM SEWER**

Peak Elev=600.70' Inflow=0.18 cfs 471 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/ Outflow=0.18 cfs 472 cf

**Total Runoff Area = 30,342 sf Runoff Volume = 471 cf Average Runoff Depth = 0.19"****0.00% Pervious = 0 sf 100.00% Impervious = 30,342 sf**

**Summary for Subcatchment E6: E6**

Runoff = 0.10 cfs @ 12.04 hrs, Volume= 265 cf, Depth= 0.19"

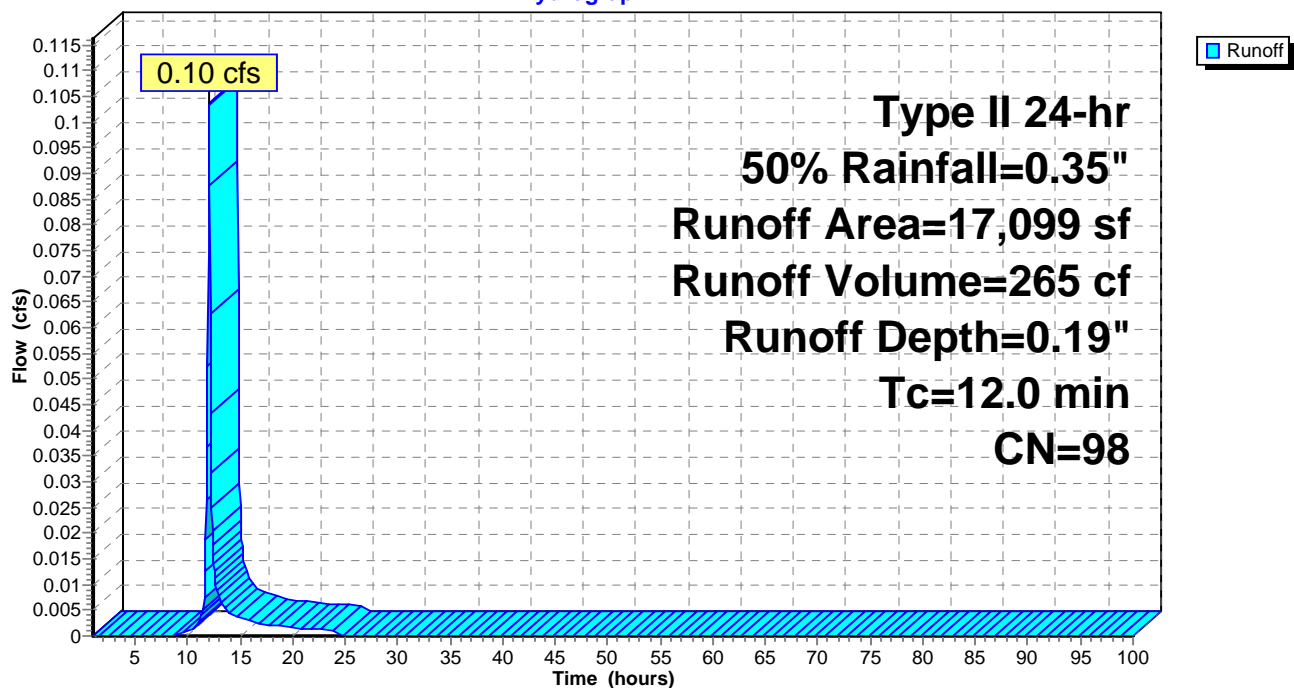
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
17,099	98	Paved parking, HSG D
17,099		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E6: E6**

Hydrograph



**Summary for Subcatchment E8: E8**

Runoff = 0.08 cfs @ 12.04 hrs, Volume= 206 cf, Depth= 0.19"

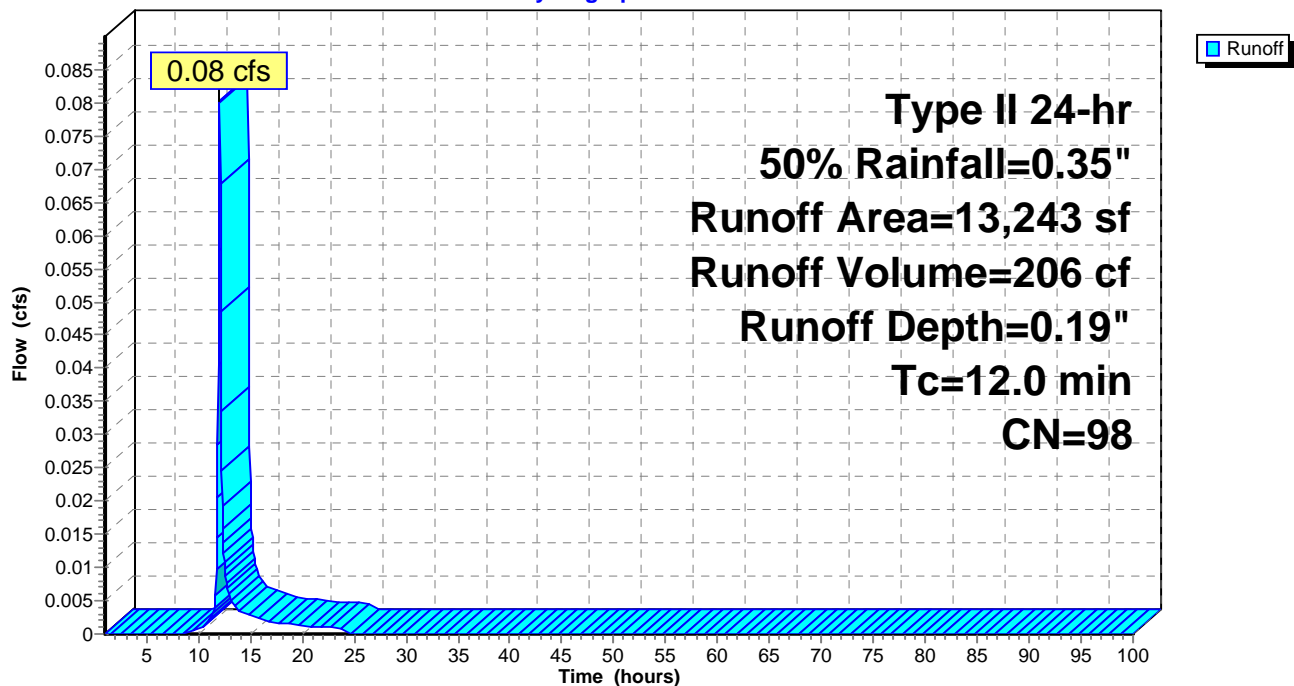
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
13,243	98	Paved parking, HSG D
13,243		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E8: E8**

Hydrograph



**Summary for Pond ELM: 30" ELM SEWER**

Inflow Area = 30,342 sf, 100.00% Impervious, Inflow Depth = 0.19" for 50% event  
 Inflow = 0.18 cfs @ 12.04 hrs, Volume= 471 cf  
 Outflow = 0.18 cfs @ 12.04 hrs, Volume= 472 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.18 cfs @ 12.04 hrs, Volume= 472 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 600.70' @ 12.04 hrs

Flood Elev= 647.22'

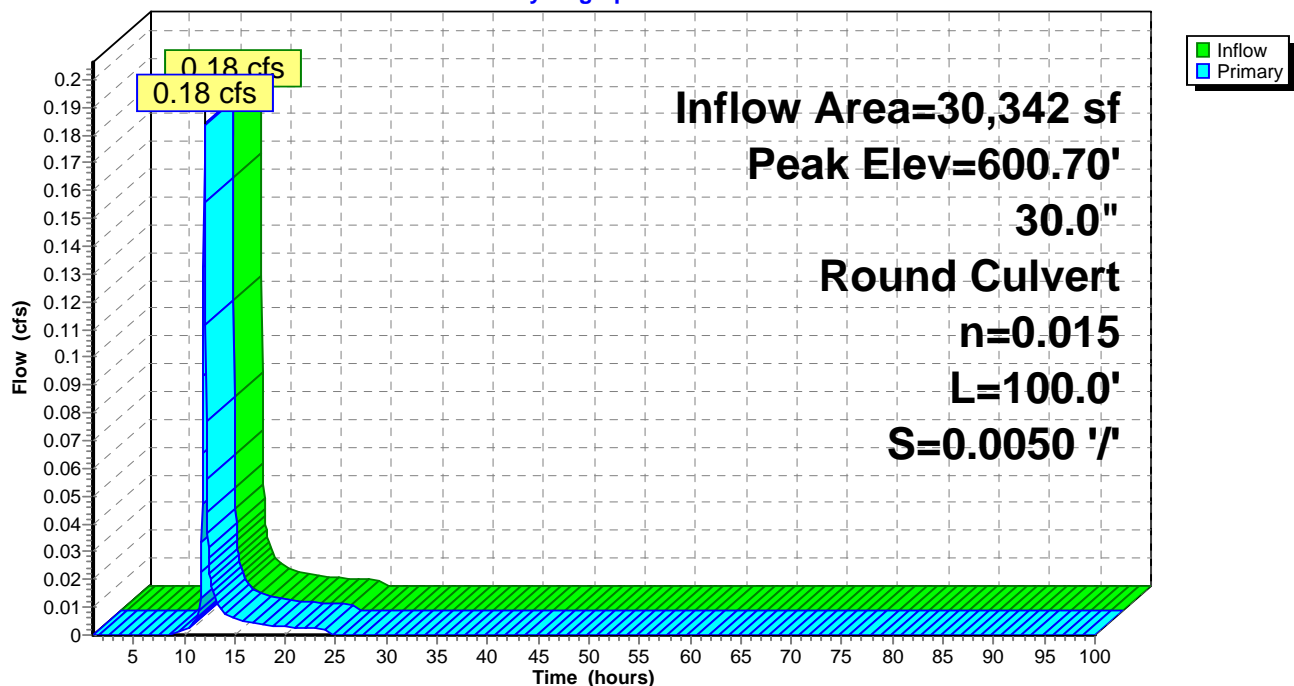
Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	<b>30.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 4.91 sf

**Primary OutFlow** Max=0.18 cfs @ 12.04 hrs HW=600.70' (Free Discharge)

1=Culvert (Barrel Controls 0.18 cfs @ 1.49 fps)

**Pond ELM: 30" ELM SEWER**

Hydrograph



**Genesee St Final***Type II 24-hr 75% Rainfall=0.50"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E6: E6**

Runoff Area=17,099 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.18 cfs 453 cf

**Subcatchment E8: E8**

Runoff Area=13,243 sf 100.00% Impervious Runoff Depth=0.32"

Tc=12.0 min CN=98 Runoff=0.14 cfs 351 cf

**Pond ELM: 30" ELM SEWER**

Peak Elev=600.76' Inflow=0.31 cfs 804 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/ Outflow=0.31 cfs 805 cf

**Total Runoff Area = 30,342 sf Runoff Volume = 804 cf Average Runoff Depth = 0.32"****0.00% Pervious = 0 sf 100.00% Impervious = 30,342 sf**

**Summary for Subcatchment E6: E6**

Runoff = 0.18 cfs @ 12.04 hrs, Volume= 453 cf, Depth= 0.32"

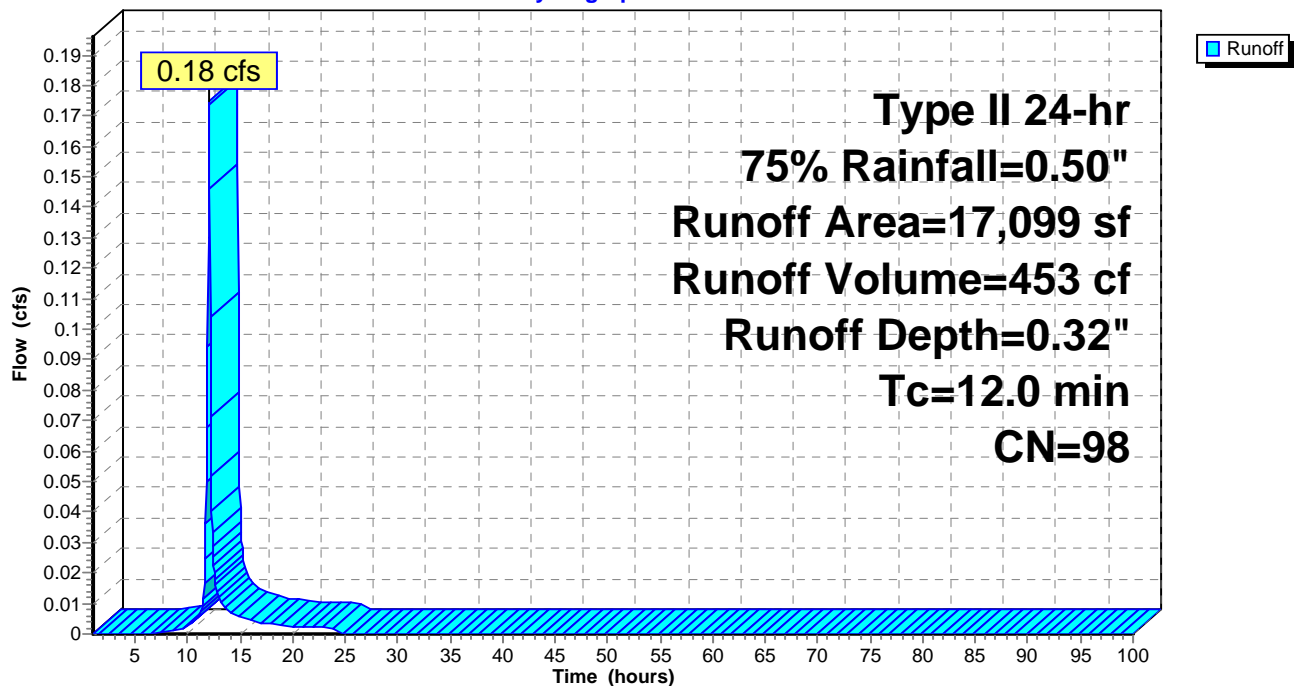
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
17,099	98	Paved parking, HSG D
17,099		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E6: E6**

Hydrograph



**Summary for Subcatchment E8: E8**

Runoff = 0.14 cfs @ 12.04 hrs, Volume= 351 cf, Depth= 0.32"

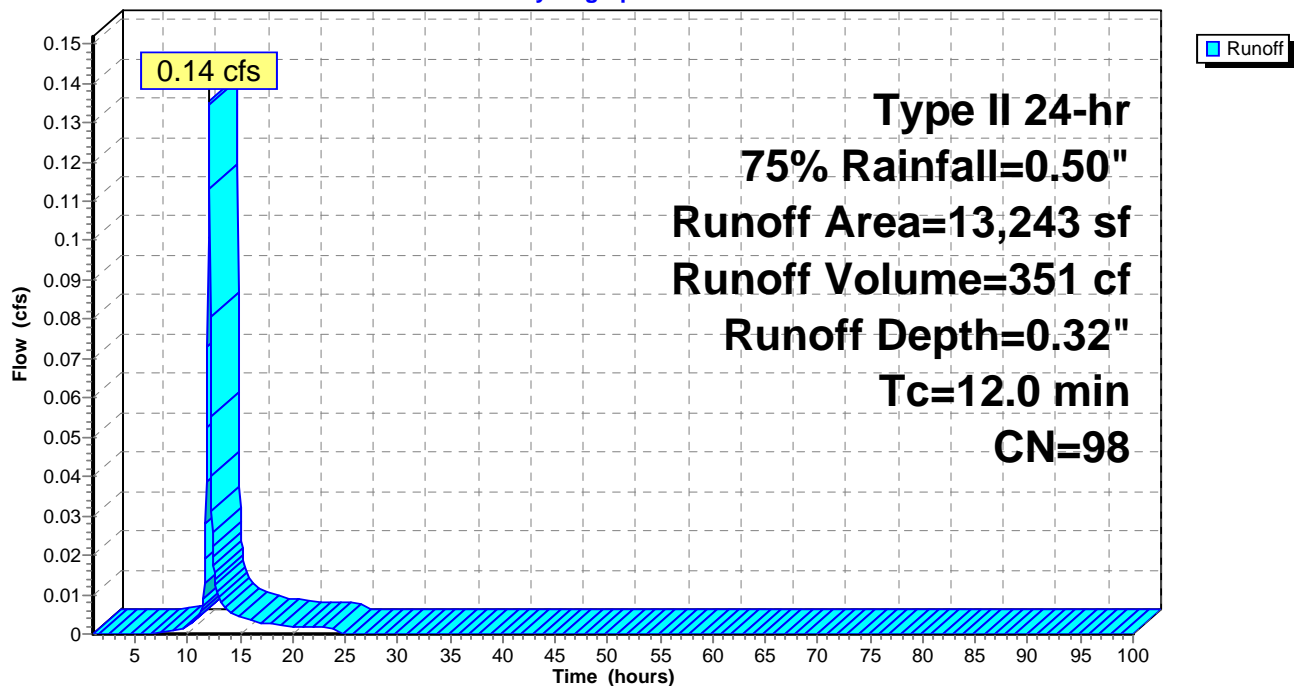
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
13,243	98	Paved parking, HSG D
13,243		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E8: E8**

Hydrograph





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Type II 24-hr 75% Rainfall=0.50"

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### Summary for Pond ELM: 30" ELM SEWER

Inflow Area = 30,342 sf, 100.00% Impervious, Inflow Depth = 0.32" for 75% event  
Inflow = 0.31 cfs @ 12.04 hrs, Volume= 804 cf  
Outflow = 0.31 cfs @ 12.04 hrs, Volume= 805 cf, Atten= 0%, Lag= 0.0 min  
Primary = 0.31 cfs @ 12.04 hrs, Volume= 805 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 600.76' @ 12.04 hrs

Flood Elev= 647.22'

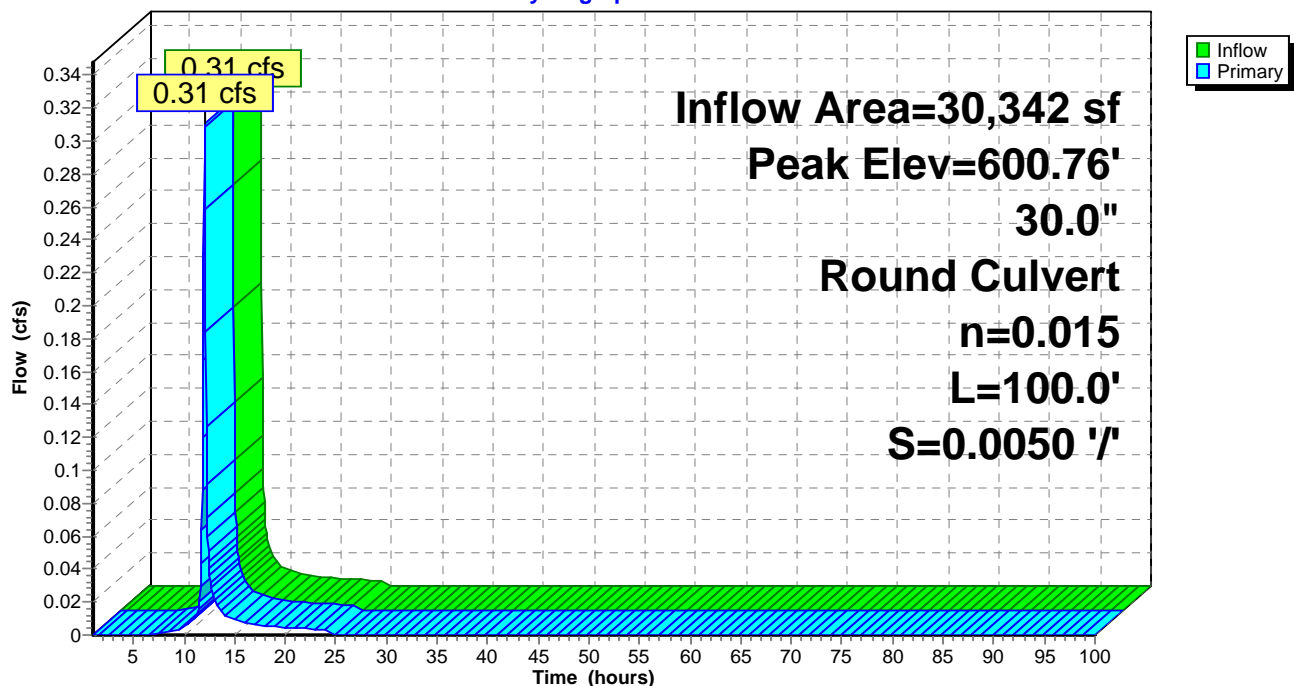
Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	<b>30.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 4.91 sf

**Primary OutFlow** Max=0.30 cfs @ 12.04 hrs HW=600.76' (Free Discharge)

1=Culvert (Barrel Controls 0.30 cfs @ 1.73 fps)

### Pond ELM: 30" ELM SEWER

Hydrograph



**Genesee St Final***Type II 24-hr WQv Rainfall=0.85"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment E6: E6**

Runoff Area=17,099 sf 100.00% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.34 cfs 921 cf

**Subcatchment E8: E8**

Runoff Area=13,243 sf 100.00% Impervious Runoff Depth=0.65"

Tc=12.0 min CN=98 Runoff=0.27 cfs 713 cf

**Pond ELM: 30" ELM SEWER**

Peak Elev=600.86' Inflow=0.61 cfs 1,634 cf

30.0" Round Culvert n=0.015 L=100.0' S=0.0050 '/' Outflow=0.61 cfs 1,635 cf

**Total Runoff Area = 30,342 sf   Runoff Volume = 1,634 cf   Average Runoff Depth = 0.65"**  
**0.00% Pervious = 0 sf   100.00% Impervious = 30,342 sf**

**Summary for Subcatchment E6: E6**

Runoff = 0.34 cfs @ 12.03 hrs, Volume= 921 cf, Depth= 0.65"

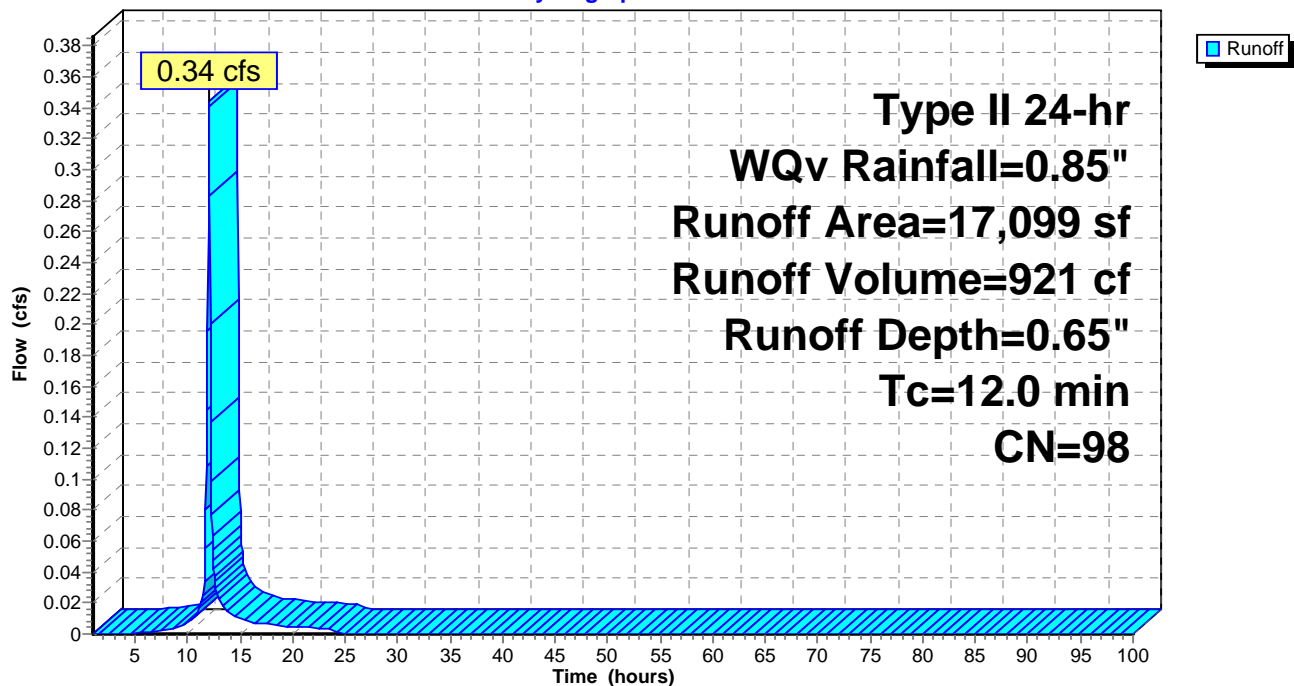
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
17,099	98	Paved parking, HSG D
17,099		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E6: E6**

Hydrograph



**Summary for Subcatchment E8: E8**

Runoff = 0.27 cfs @ 12.03 hrs, Volume= 713 cf, Depth= 0.65"

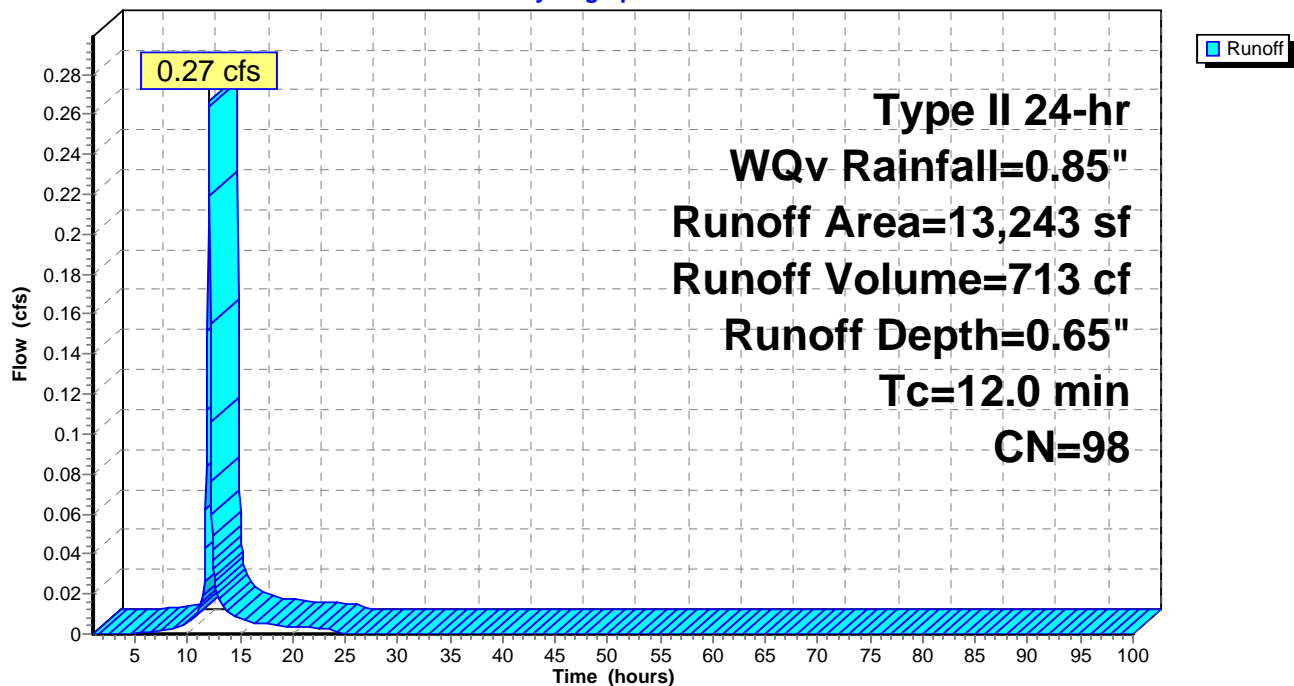
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
13,243	98	Paved parking, HSG D
13,243		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry, SHEET FLOW

**Subcatchment E8: E8**

Hydrograph



**Summary for Pond ELM: 30" ELM SEWER**

Inflow Area = 30,342 sf, 100.00% Impervious, Inflow Depth = 0.65" for WQv event  
 Inflow = 0.61 cfs @ 12.03 hrs, Volume= 1,634 cf  
 Outflow = 0.61 cfs @ 12.03 hrs, Volume= 1,635 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.61 cfs @ 12.03 hrs, Volume= 1,635 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 600.86' @ 12.03 hrs

Flood Elev= 647.22'

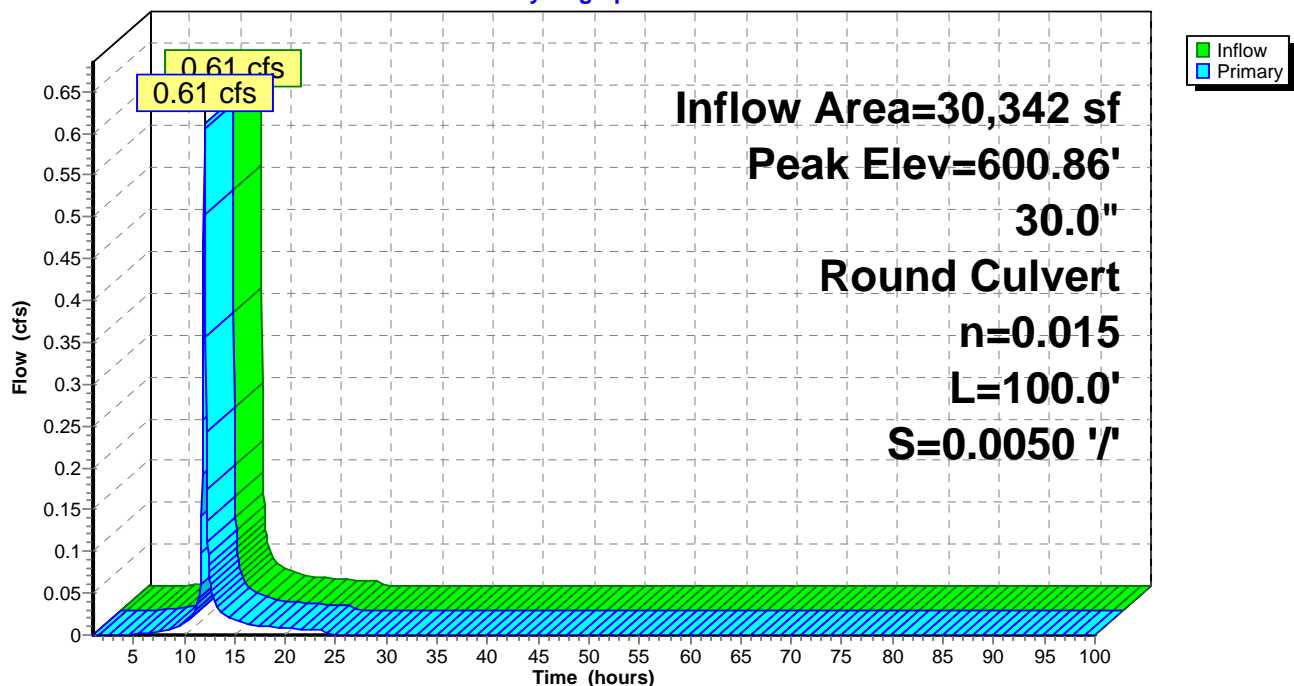
Device	Routing	Invert	Outlet Devices
#1	Primary	600.50'	<b>30.0" Round Culvert</b> L= 100.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 600.50' / 600.00' S= 0.0050 '/ Cc= 0.900 n= 0.015 Brickwork, Flow Area= 4.91 sf

**Primary OutFlow** Max=0.60 cfs @ 12.03 hrs HW=600.86' (Free Discharge)

1=Culvert (Barrel Controls 0.60 cfs @ 2.11 fps)

**Pond ELM: 30" ELM SEWER**

Hydrograph





Area 19B



Area 19



Area 22



Area 23



Area 24



Planter PB-1C



Planter PB-3C



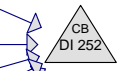
Planter-PB-4C



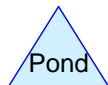
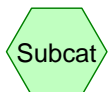
DS 36



DS 40



DI #252 - ELM ST  
SEWER



### Routing Diagram for Genesee St Final

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### Area Listing (selected nodes)

Area (sq-ft)	CN	Description (subcatchment-numbers)
598	80	>75% Grass cover, Good, HSG D (19, 19B, 22, 23, 24)
29,324	98	Paved parking, HSG D (19, 19B, 22, 23, 24)
<b>29,922</b>	<b>98</b>	<b>TOTAL AREA</b>

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### Soil Listing (selected nodes)

Area (sq-ft)	Soil Group	Subcatchment Numbers
0	HSG A	
0	HSG B	
0	HSG C	
29,922	HSG D	19, 19B, 22, 23, 24
0	Other	
<b>29,922</b>		<b>TOTAL AREA</b>



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**Ground Covers (selected nodes)**

HSG-A (sq-ft)	HSG-B (sq-ft)	HSG-C (sq-ft)	HSG-D (sq-ft)	Other (sq-ft)	Total (sq-ft)	Ground Cover	Sub Num
0	0	0	598	0	598	>75% Grass cover, Good	
0	0	0	29,324	0	29,324	Paved parking	
<b>0</b>	<b>0</b>	<b>0</b>	<b>29,922</b>	<b>0</b>	<b>29,922</b>	<b>TOTAL AREA</b>	

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**Pipe Listing (selected nodes)**

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	23P	609.10	608.04	48.0	0.0221	0.012	12.0	0.0	0.0
2	24P	608.18	608.10	77.0	0.0010	0.012	12.0	0.0	0.0
3	DI 252	608.31	607.45	46.0	0.0187	0.011	12.0	0.0	0.0
4	DS 35	609.81	609.75	5.0	0.0120	0.013	6.0	0.0	0.0
5	DS 35	608.78	608.78	48.0	0.0000	0.010	6.0	0.0	0.0
6	DS 39	608.24	608.18	5.0	0.0120	0.013	6.0	0.0	0.0
7	DS 39	607.39	607.39	59.0	0.0000	0.010	6.0	0.0	0.0
8	DS41	608.24	608.18	5.0	0.0120	0.013	6.0	0.0	0.0
9	DS41	607.39	607.39	49.0	0.0000	0.010	6.0	0.0	0.0

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Type II 24-hr 2 YR Rainfall=2.25"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 19: Area 19</b>	Runoff Area=6,022 sf 97.38% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.36 cfs 1,015 cf
<b>Subcatchment 19B: Area 19B</b>	Runoff Area=4,435 sf 98.74% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.26 cfs 747 cf
<b>Subcatchment 22: Area 22</b>	Runoff Area=3,376 sf 95.56% Impervious Runoff Depth=1.92" Tc=12.0 min CN=97 Runoff=0.19 cfs 539 cf
<b>Subcatchment 23: Area 23</b>	Runoff Area=1,842 sf 91.86% Impervious Runoff Depth=1.92" Tc=12.0 min CN=97 Runoff=0.11 cfs 294 cf
<b>Subcatchment 24: Area 24</b>	Runoff Area=14,247 sf 99.41% Impervious Runoff Depth=2.02" Tc=12.0 min CN=98 Runoff=0.84 cfs 2,401 cf
<b>Pond 23P: DS 36</b>	Peak Elev=609.43' Inflow=0.37 cfs 892 cf 12.0" Round Culvert n=0.012 L=48.0' S=0.0221 '/ Outflow=0.37 cfs 895 cf
<b>Pond 24P: DS 40</b>	Peak Elev=608.63' Inflow=0.01 cfs 431 cf 12.0" Round Culvert n=0.012 L=77.0' S=0.0010 '/ Outflow=0.01 cfs 431 cf
<b>Pond DI 252: DI #252 - ELM ST SEWER</b>	Peak Elev=608.94' Inflow=1.43 cfs 4,854 cf 12.0" Round Culvert n=0.011 L=46.0' S=0.0187 '/ Outflow=1.43 cfs 4,856 cf
<b>Pond DS 35: Planter PB-1C</b>	Peak Elev=613.32' Storage=446 cf Inflow=0.36 cfs 1,015 cf Outflow=0.37 cfs 892 cf
<b>Pond DS 39: Planter PB-3C</b>	Peak Elev=611.78' Storage=427 cf Inflow=0.19 cfs 539 cf Outflow=0.01 cfs 431 cf
<b>Pond DS41: Planter-PB-4C</b>	Peak Elev=609.83' Storage=238 cf Inflow=0.11 cfs 294 cf Outflow=0.00 cfs 180 cf

**Total Runoff Area = 29,922 sf Runoff Volume = 4,997 cf Average Runoff Depth = 2.00"**  
**2.00% Pervious = 598 sf 98.00% Impervious = 29,324 sf**

**Summary for Subcatchment 19: Area 19**

Runoff = 0.36 cfs @ 12.03 hrs, Volume= 1,015 cf, Depth= 2.02"

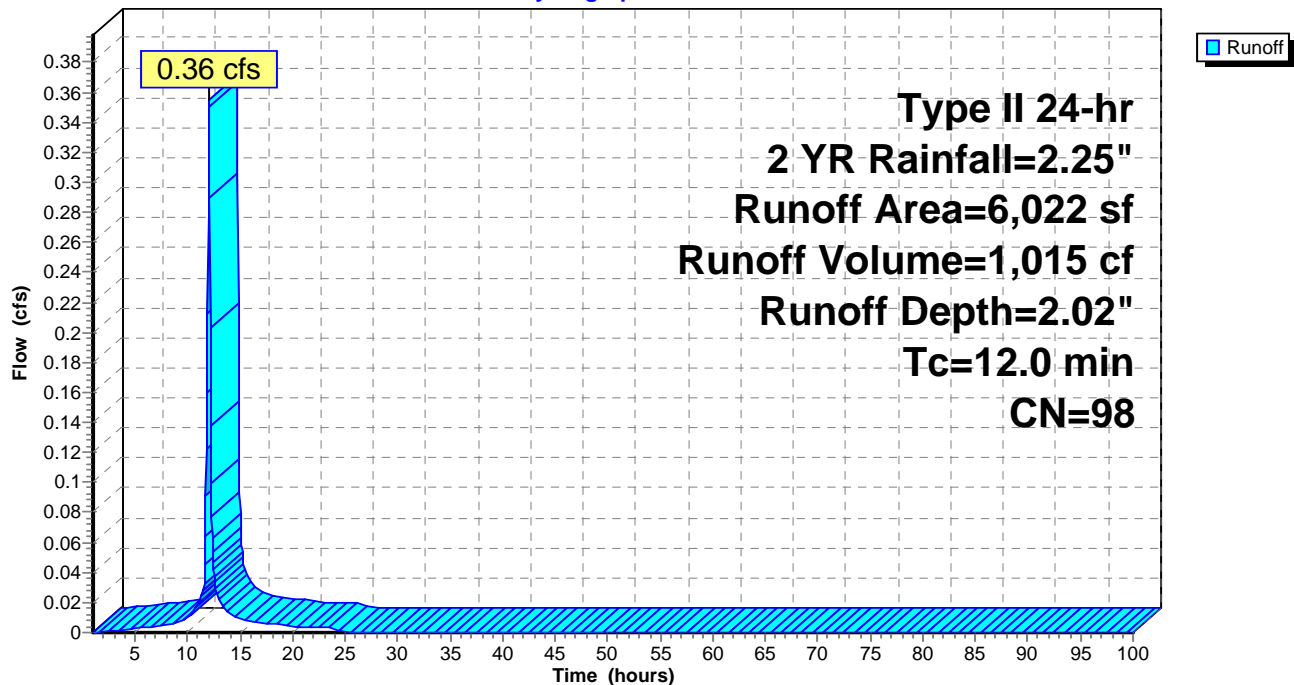
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
158	80	>75% Grass cover, Good, HSG D
5,864	98	Paved parking, HSG D
6,022	98	Weighted Average
158		2.62% Pervious Area
5,864		97.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 19: Area 19**

Hydrograph



**Summary for Subcatchment 19B: Area 19B**

Runoff = 0.26 cfs @ 12.03 hrs, Volume= 747 cf, Depth= 2.02"

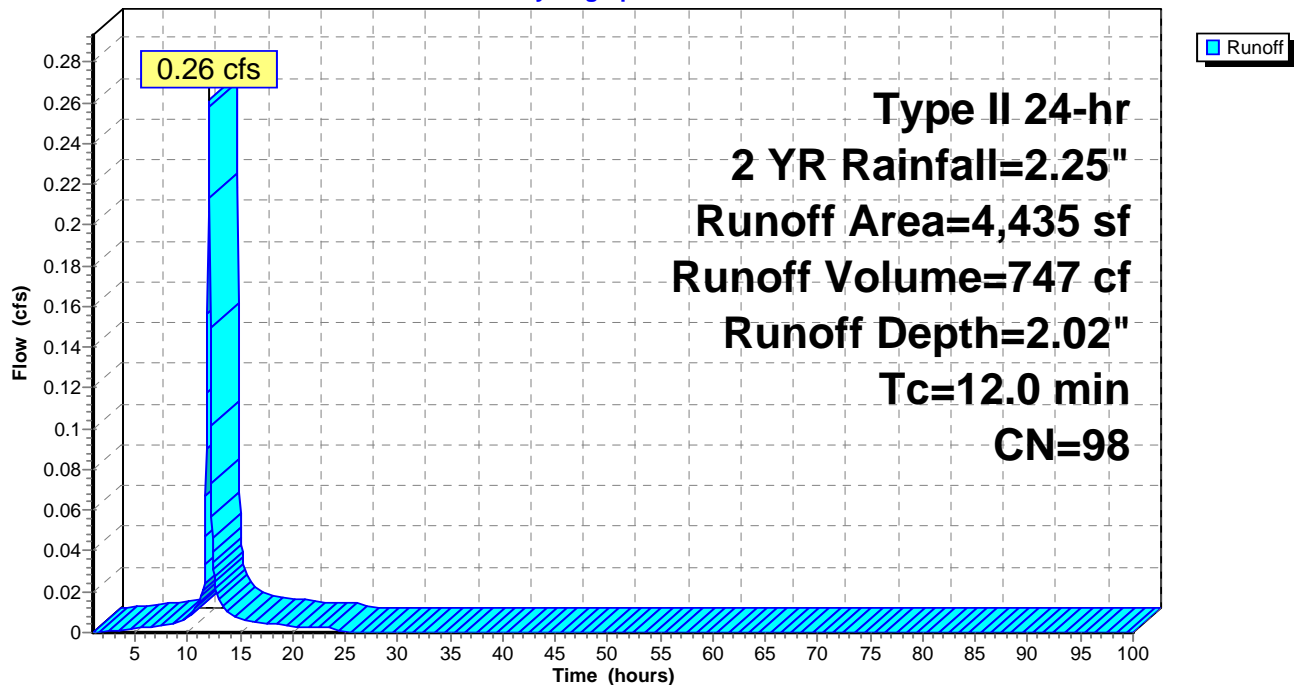
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
56	80	>75% Grass cover, Good, HSG D
4,379	98	Paved parking, HSG D
4,435	98	Weighted Average
56		1.26% Pervious Area
4,379		98.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 19B: Area 19B**

Hydrograph



**Summary for Subcatchment 22: Area 22**

Runoff = 0.19 cfs @ 12.03 hrs, Volume= 539 cf, Depth= 1.92"

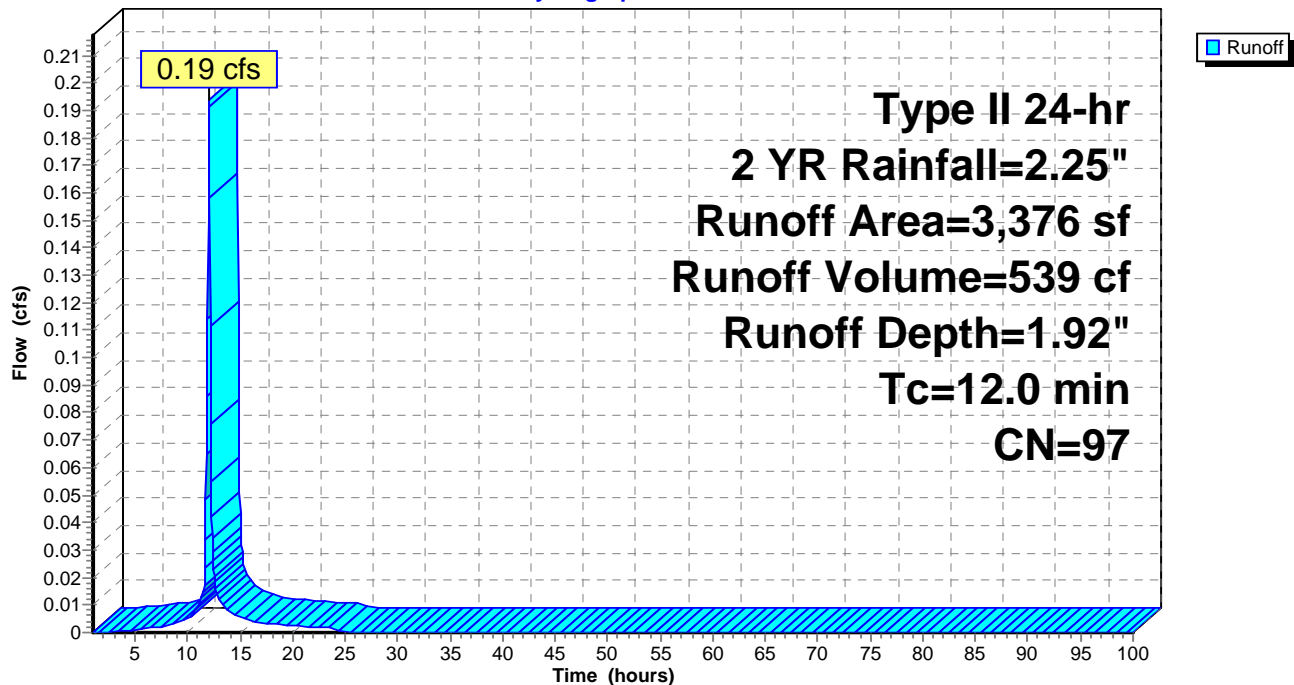
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
150	80	>75% Grass cover, Good, HSG D
3,226	98	Paved parking, HSG D
3,376	97	Weighted Average
150		4.44% Pervious Area
3,226		95.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 22: Area 22**

Hydrograph



**Summary for Subcatchment 23: Area 23**

Runoff = 0.11 cfs @ 12.03 hrs, Volume= 294 cf, Depth= 1.92"

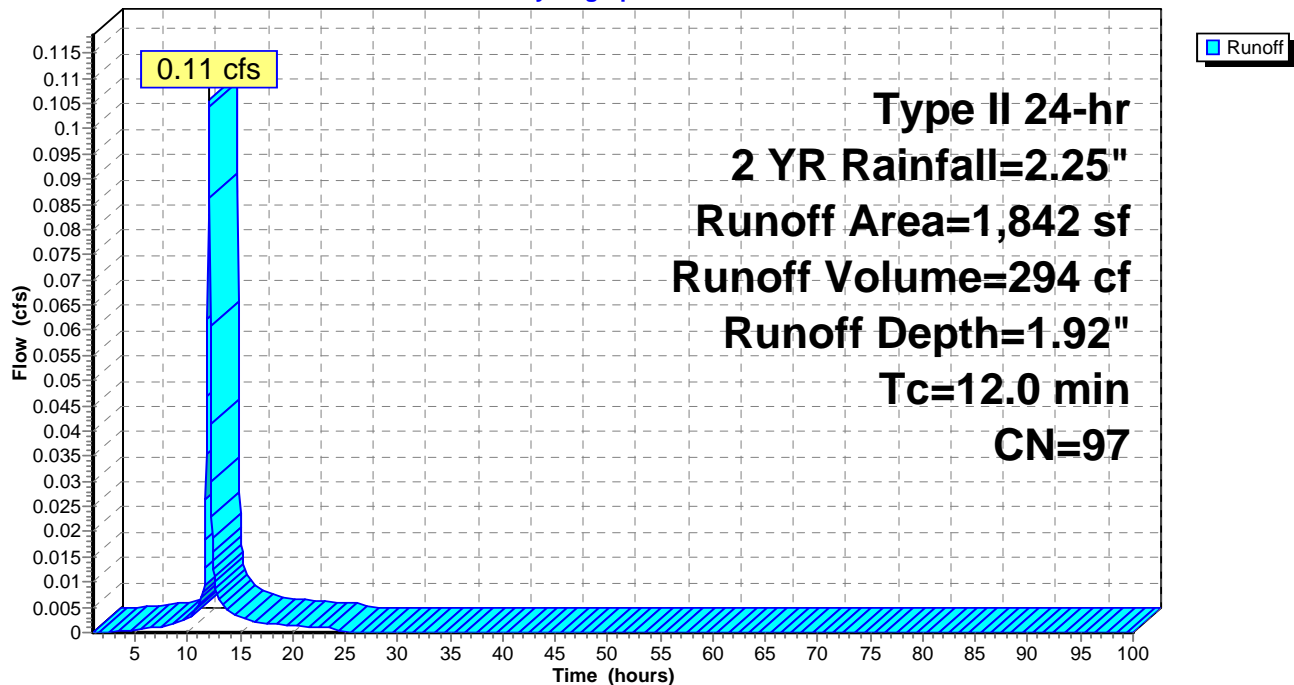
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
150	80	>75% Grass cover, Good, HSG D
1,692	98	Paved parking, HSG D
1,842	97	Weighted Average
150		8.14% Pervious Area
1,692		91.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 23: Area 23**

Hydrograph



**Summary for Subcatchment 24: Area 24**

Runoff = 0.84 cfs @ 12.03 hrs, Volume= 2,401 cf, Depth= 2.02"

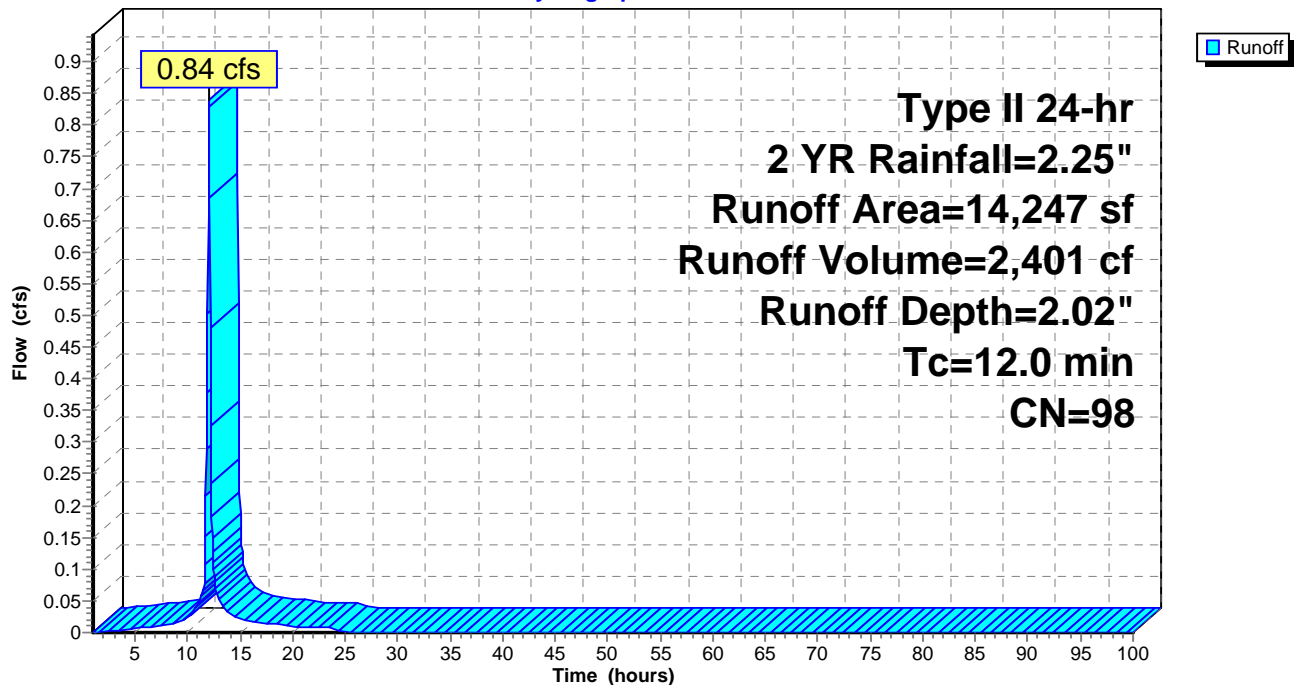
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 YR Rainfall=2.25"

Area (sf)	CN	Description
14,163	98	Paved parking, HSG D
84	80	>75% Grass cover, Good, HSG D
14,247	98	Weighted Average
84		0.59% Pervious Area
14,163		99.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 24: Area 24**

Hydrograph





**Summary for Pond 23P: DS 36**

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 1.78" for 2 YR event  
 Inflow = 0.37 cfs @ 12.07 hrs, Volume= 892 cf  
 Outflow = 0.37 cfs @ 12.07 hrs, Volume= 895 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.37 cfs @ 12.07 hrs, Volume= 895 cf

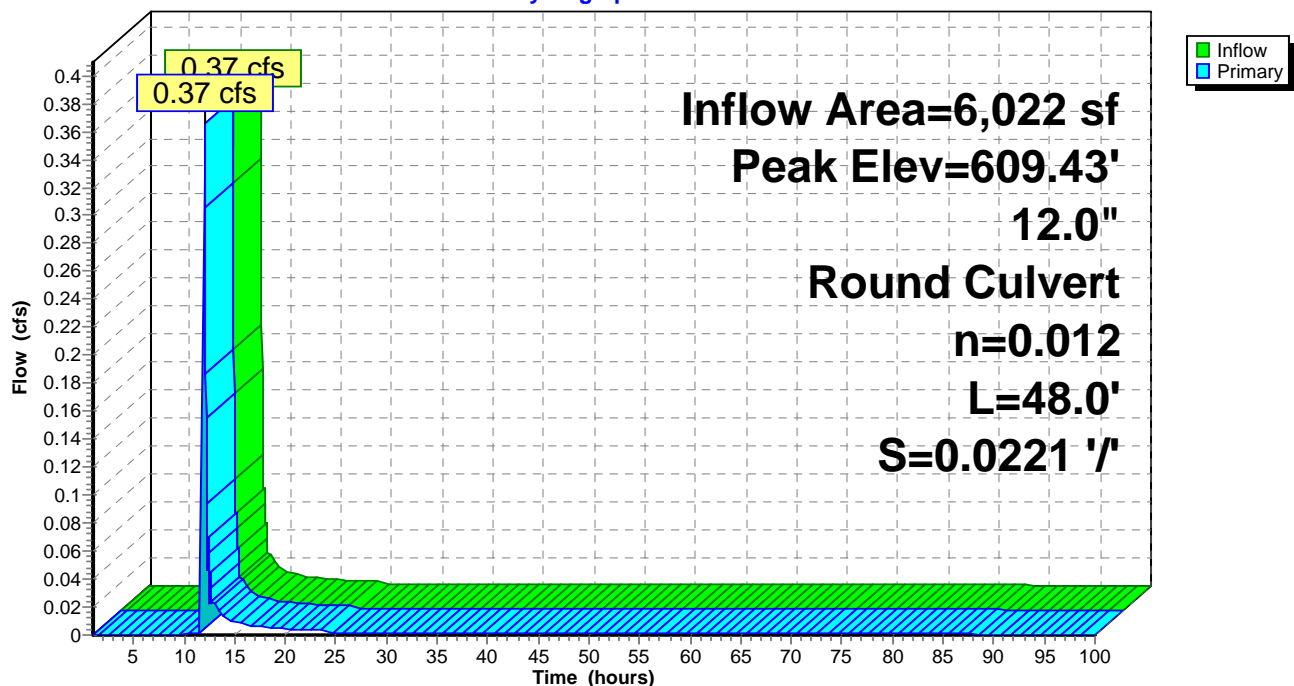
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.43' @ 12.07 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	609.10'	<b>12.0" Round Culvert</b> L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 609.10' / 608.04' S= 0.0221 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.32 cfs @ 12.07 hrs HW=609.39' TW=608.92' (Dynamic Tailwater)  
 ↳ **1=Culvert** (Outlet Controls 0.32 cfs @ 2.57 fps)

**Pond 23P: DS 36****Hydrograph**

**Summary for Pond 24P: DS 40**

[80] Warning: Exceeded Pond DS 39 by 0.23' @ 11.75 hrs (0.00 cfs 1 cf)

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth > 1.53" for 2 YR event  
 Inflow = 0.01 cfs @ 15.01 hrs, Volume= 431 cf  
 Outflow = 0.01 cfs @ 15.01 hrs, Volume= 431 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.01 cfs @ 15.01 hrs, Volume= 431 cf

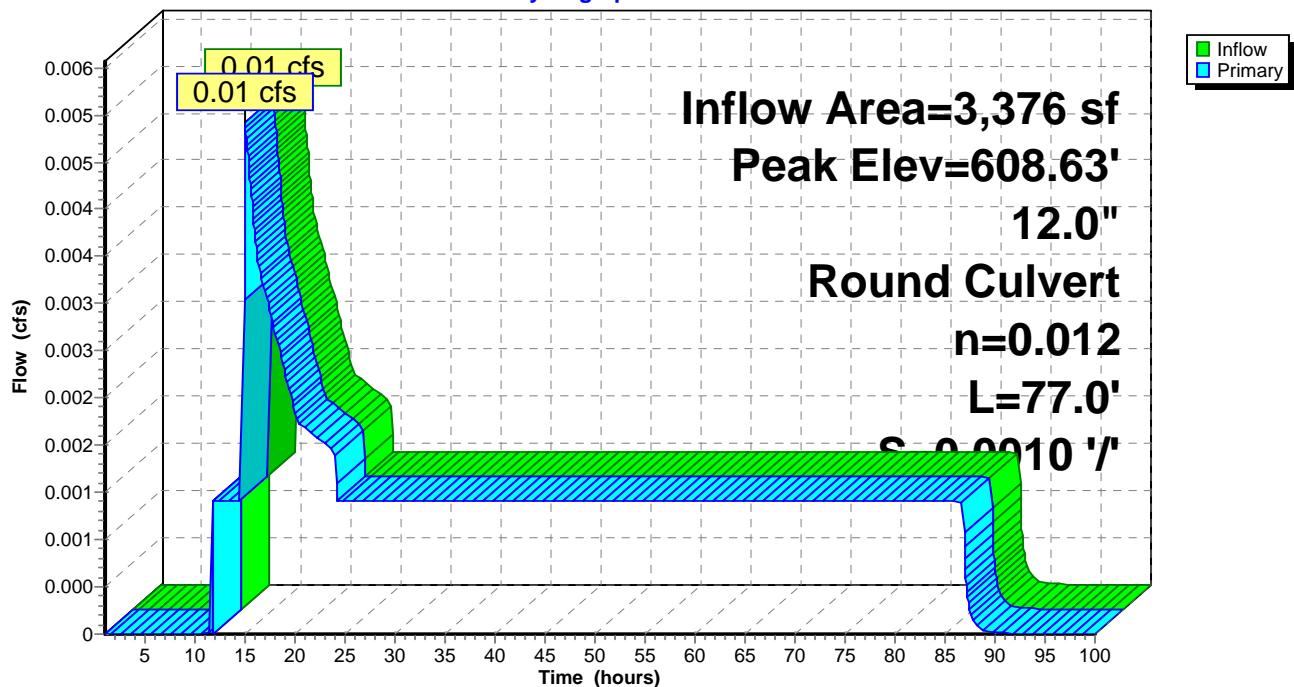
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 608.63' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.18'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.18' / 608.10' S= 0.0010 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 15.01 hrs HW=608.36' TW=608.41' (Dynamic Tailwater)  
 ↑1=Culvert ( Controls 0.00 cfs)

**Pond 24P: DS 40****Hydrograph**

**Summary for Pond DI 252: DI #252 - ELM ST SEWER**

[80] Warning: Exceeded Pond 24P by 0.33' @ 11.70 hrs (0.23 cfs 17,280 cf)

[80] Warning: Exceeded Pond DS41 by 1.45' @ 3.55 hrs (0.00 cfs 272 cf)

Inflow Area = 29,922 sf, 98.00% Impervious, Inflow Depth = 1.95" for 2 YR event  
 Inflow = 1.43 cfs @ 12.06 hrs, Volume= 4,854 cf  
 Outflow = 1.43 cfs @ 12.06 hrs, Volume= 4,856 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 1.43 cfs @ 12.06 hrs, Volume= 4,864 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

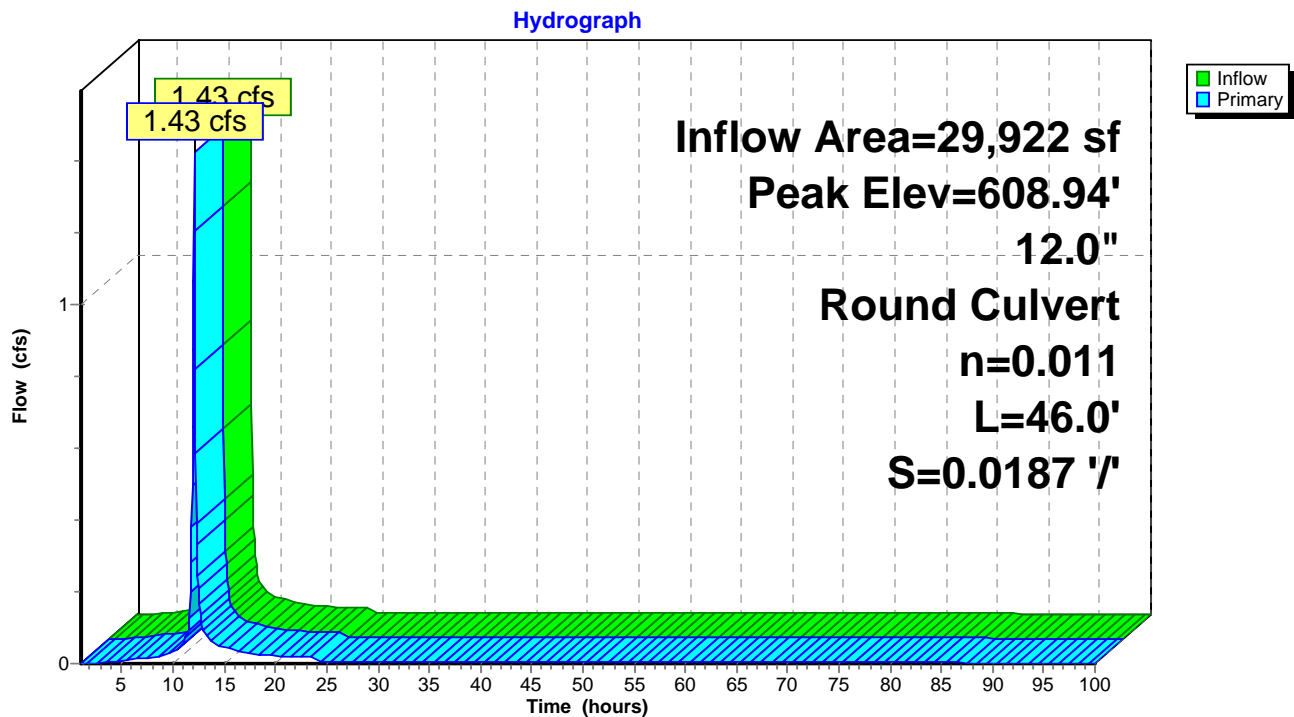
Peak Elev= 608.94' @ 12.06 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.31'	<b>12.0" Round Culvert</b> L= 46.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.31' / 607.45' S= 0.0187 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

**Primary OutFlow** Max=1.39 cfs @ 12.06 hrs HW=608.94' (Free Discharge)

↑**1=Culvert** (Inlet Controls 1.39 cfs @ 2.69 fps)

**Pond DI 252: DI #252 - ELM ST SEWER**

**Summary for Pond DS 35: Planter PB-1C**

[93] Warning: Storage range exceeded by 0.04'

[90] Warning: Qout&gt;Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=4)

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 2.02" for 2 YR event  
 Inflow = 0.36 cfs @ 12.03 hrs, Volume= 1,015 cf  
 Outflow = 0.37 cfs @ 12.07 hrs, Volume= 892 cf, Atten= 0%, Lag= 2.4 min  
 Primary = 0.37 cfs @ 12.07 hrs, Volume= 892 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 613.32' @ 12.05 hrs Surf.Area= 200 sf Storage= 446 cf

Plug-Flow detention time= 1,071.4 min calculated for 892 cf (88% of inflow)  
 Center-of-Mass det. time= 1,012.1 min ( 1,778.4 - 766.3 )

Volume	Invert	Avail.Storage	Storage Description
#1	608.28'	446 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.28	200	0.0	0	0
611.78	200	40.0	280	280
611.79	200	20.0	0	280
613.11	200	50.0	132	412
613.28	200	100.0	34	446

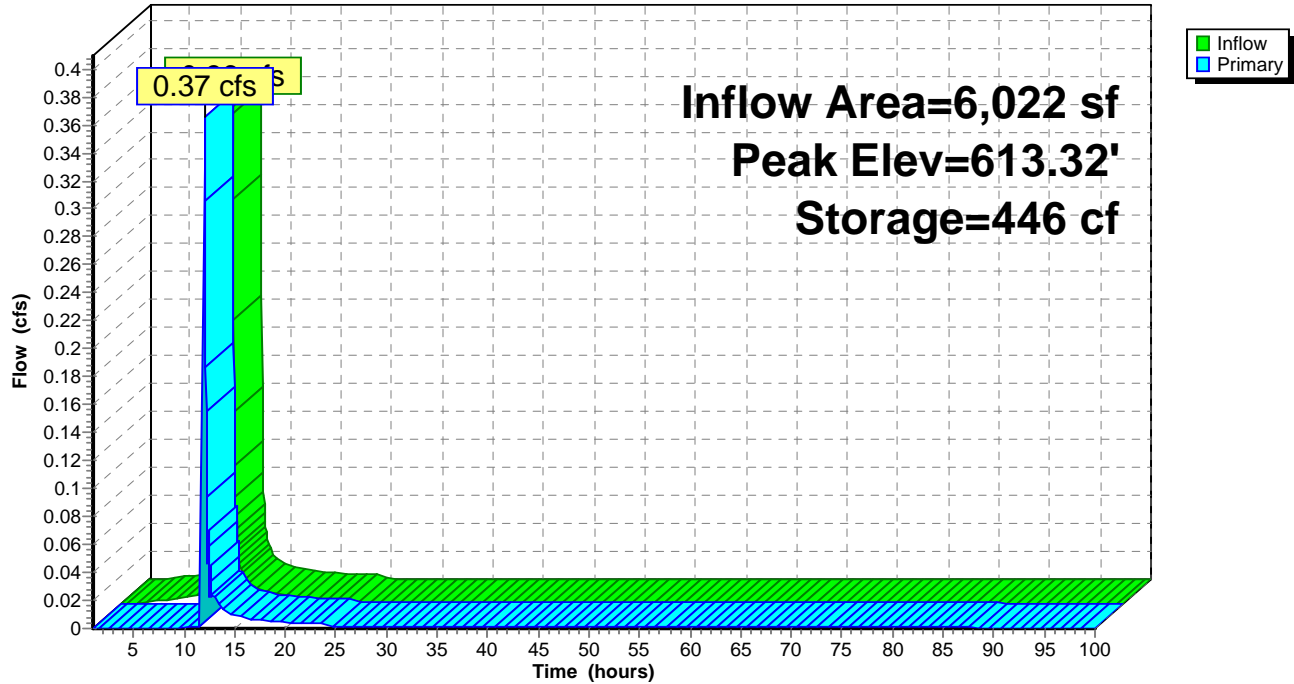
Device	Routing	Invert	Outlet Devices
#1	Primary	609.81'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.81' / 609.75' S= 0.0120 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	608.78'	<b>6.0" Round Culvert</b> L= 48.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.78' / 608.78' S= 0.0000 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.28'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.27'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.32 cfs @ 12.07 hrs HW=613.32' TW=609.39' (Dynamic Tailwater)

1=Culvert (Passes 0.32 cfs of 1.71 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.53 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.32 cfs @ 0.75 fps)

**Pond DS 35: Planter PB-1C**

Hydrograph



**Summary for Pond DS 39: Planter PB-3C**

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 1.92" for 2 YR event  
 Inflow = 0.19 cfs @ 12.03 hrs, Volume= 539 cf  
 Outflow = 0.01 cfs @ 15.01 hrs, Volume= 431 cf, Atten= 97%, Lag= 178.5 min  
 Primary = 0.01 cfs @ 15.01 hrs, Volume= 431 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.78' @ 15.01 hrs Surf.Area= 202 sf Storage= 427 cf

Plug-Flow detention time= 2,053.2 min calculated for 431 cf (80% of inflow)  
 Center-of-Mass det. time= 1,974.6 min ( 2,752.3 - 777.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	606.90'	429 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.90	202	0.0	0	0
610.40	202	40.0	283	283
610.41	202	20.0	0	283
611.73	202	50.0	133	417
611.79	202	100.0	12	429

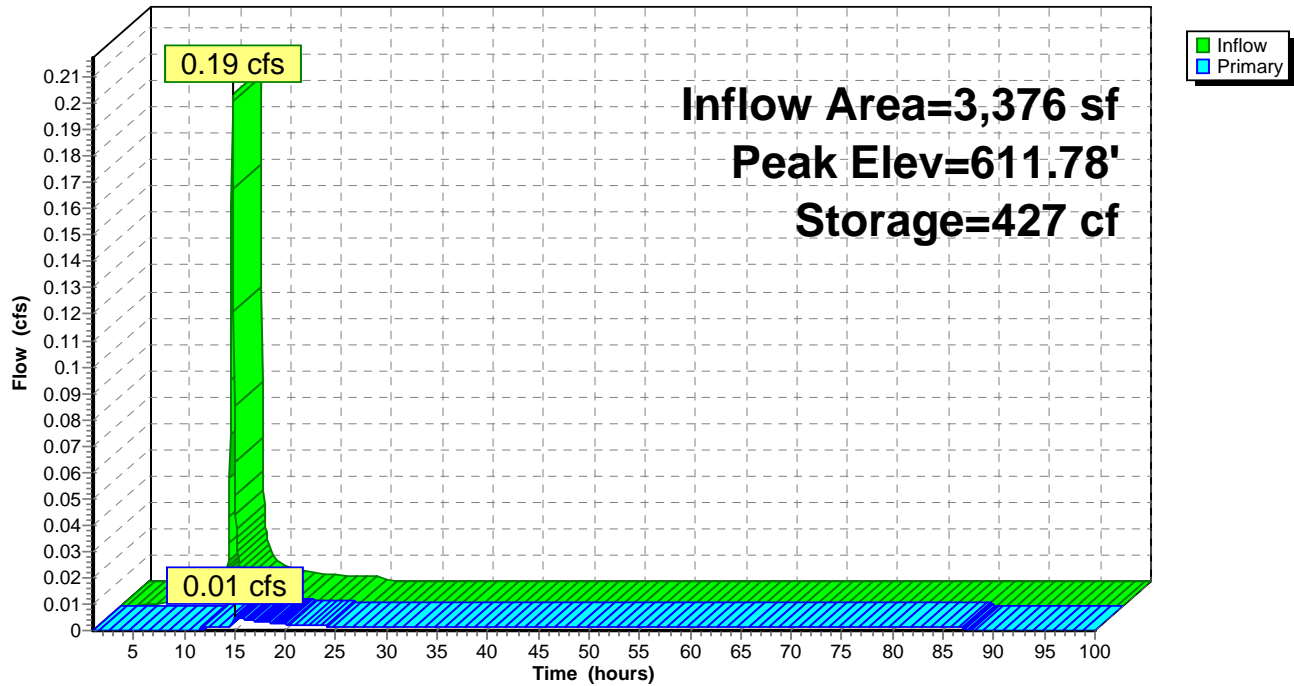
Device	Routing	Invert	Outlet Devices
#1	Primary	608.24'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.24' / 608.18' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	607.39'	<b>6.0" Round Culvert</b> L= 59.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 607.39' / 607.39' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	606.90'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	611.78'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.01 cfs @ 15.01 hrs HW=611.78' TW=608.36' (Dynamic Tailwater)

1=Culvert (Passes 0.01 cfs of 1.72 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.41 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.00 cfs @ 0.17 fps)

## Pond DS 39: Planter PB-3C

Hydrograph



**Summary for Pond DS41: Planter-PB-4C**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=58)

Inflow Area = 1,842 sf, 91.86% Impervious, Inflow Depth = 1.92" for 2 YR event  
 Inflow = 0.11 cfs @ 12.03 hrs, Volume= 294 cf  
 Outflow = 0.00 cfs @ 12.15 hrs, Volume= 180 cf, Atten= 99%, Lag= 7.1 min  
 Primary = 0.00 cfs @ 12.15 hrs, Volume= 380 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 609.83' @ 19.43 hrs Surf.Area= 202 sf Storage= 238 cf

Plug-Flow detention time= 1,151.8 min calculated for 179 cf (61% of inflow)  
 Center-of-Mass det. time= 1,048.7 min ( 1,826.4 - 777.7 )

Volume	Invert	Avail.Storage	Storage Description	
#1	606.89'	451 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)	
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.89	202	0.0	0	0
610.38	202	40.0	282	282
610.39	202	20.0	0	282
611.72	202	50.0	134	417
611.89	202	100.0	34	451

Device	Routing	Invert	Outlet Devices
#1	Primary	608.24'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.24' / 608.18' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	607.39'	<b>6.0" Round Culvert</b> L= 49.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 607.39' / 607.39' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	606.89'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	611.88'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

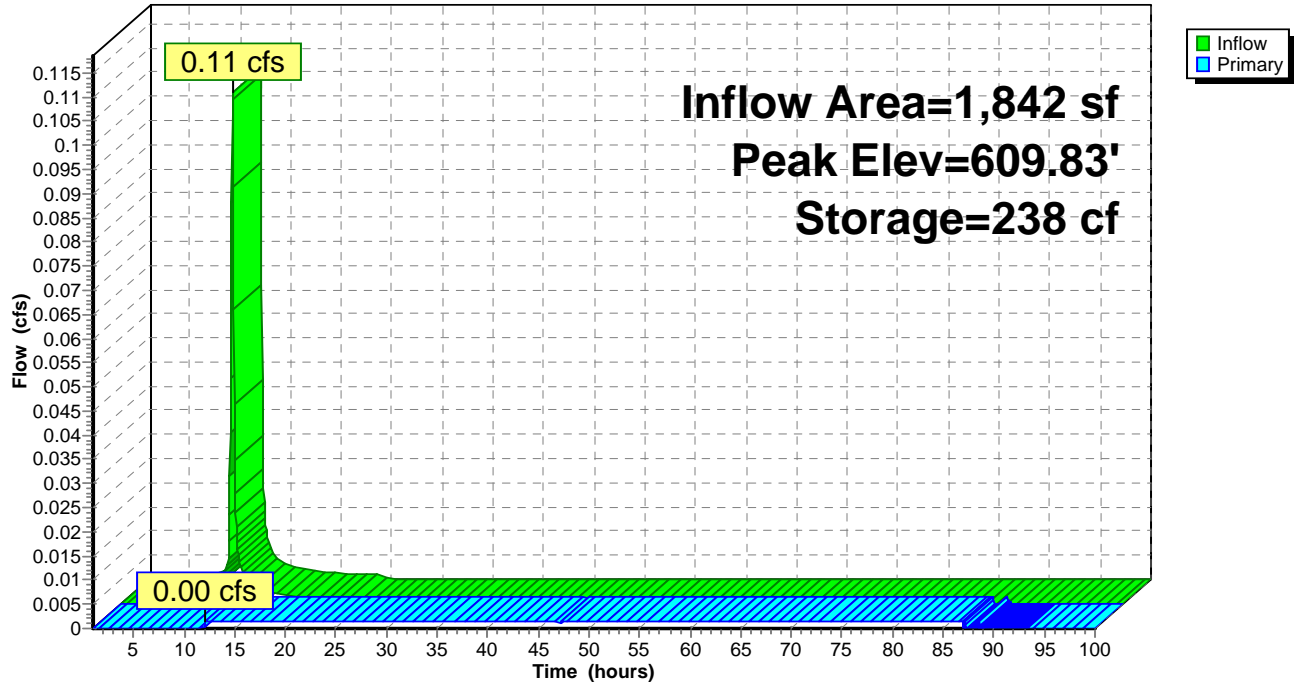
**Primary OutFlow** Max=0.00 cfs @ 12.15 hrs HW=608.93' TW=608.77' (Dynamic Tailwater)

1=Culvert (Passes 0.00 cfs of 0.38 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 0.32 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate ( Controls 0.00 cfs)



Pond DS41: Planter-PB-4C

Hydrograph



**Genesee St Final**

Prepared by Microsoft

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Type II 24-hr 25 Year Rainfall=4.00"

Printed 5/4/2015

Page 21

Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 19: Area 19**Runoff Area=6,022 sf 97.38% Impervious Runoff Depth=3.77"  
Tc=12.0 min CN=98 Runoff=0.64 cfs 1,889 cf**Subcatchment 19B: Area 19B**Runoff Area=4,435 sf 98.74% Impervious Runoff Depth=3.77"  
Tc=12.0 min CN=98 Runoff=0.47 cfs 1,392 cf**Subcatchment 22: Area 22**Runoff Area=3,376 sf 95.56% Impervious Runoff Depth=3.65"  
Tc=12.0 min CN=97 Runoff=0.36 cfs 1,027 cf**Subcatchment 23: Area 23**Runoff Area=1,842 sf 91.86% Impervious Runoff Depth=3.65"  
Tc=12.0 min CN=97 Runoff=0.19 cfs 560 cf**Subcatchment 24: Area 24**Runoff Area=14,247 sf 99.41% Impervious Runoff Depth=3.77"  
Tc=12.0 min CN=98 Runoff=1.52 cfs 4,470 cf**Pond 23P: DS 36**Peak Elev=609.72' Inflow=0.67 cfs 1,767 cf  
12.0" Round Culvert n=0.012 L=48.0' S=0.0221 '/' Outflow=0.67 cfs 1,769 cf**Pond 24P: DS 40**Peak Elev=609.59' Inflow=0.63 cfs 919 cf  
12.0" Round Culvert n=0.012 L=77.0' S=0.0010 '/' Outflow=0.63 cfs 917 cf**Pond DI 252: DI #252 - ELM ST SEWER**Peak Elev=609.56' Inflow=3.27 cfs 8,995 cf  
12.0" Round Culvert n=0.011 L=46.0' S=0.0187 '/' Outflow=3.27 cfs 8,996 cf**Pond DS 35: Planter PB-1C**Peak Elev=613.36' Storage=446 cf Inflow=0.64 cfs 1,889 cf  
Outflow=0.67 cfs 1,767 cf**Pond DS 39: Planter PB-3C**Peak Elev=611.86' Storage=429 cf Inflow=0.36 cfs 1,027 cf  
Outflow=0.63 cfs 919 cf**Pond DS41: Planter-PB-4C**Peak Elev=611.88' Storage=450 cf Inflow=0.19 cfs 560 cf  
Outflow=0.01 cfs 446 cf**Total Runoff Area = 29,922 sf   Runoff Volume = 9,339 cf   Average Runoff Depth = 3.75"**  
**2.00% Pervious = 598 sf   98.00% Impervious = 29,324 sf**

**Summary for Subcatchment 19: Area 19**

Runoff = 0.64 cfs @ 12.03 hrs, Volume= 1,889 cf, Depth= 3.77"

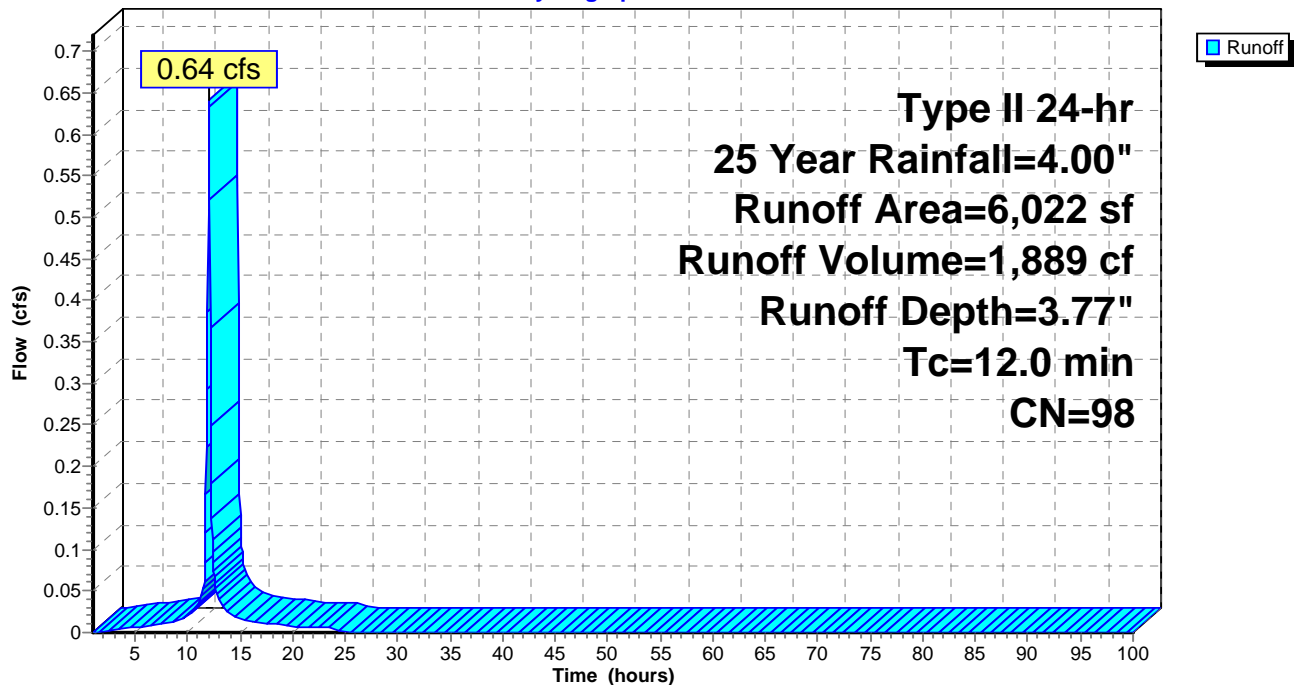
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
158	80	>75% Grass cover, Good, HSG D
5,864	98	Paved parking, HSG D
6,022	98	Weighted Average
158		2.62% Pervious Area
5,864		97.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 19: Area 19**

Hydrograph



**Summary for Subcatchment 19B: Area 19B**

Runoff = 0.47 cfs @ 12.03 hrs, Volume= 1,392 cf, Depth= 3.77"

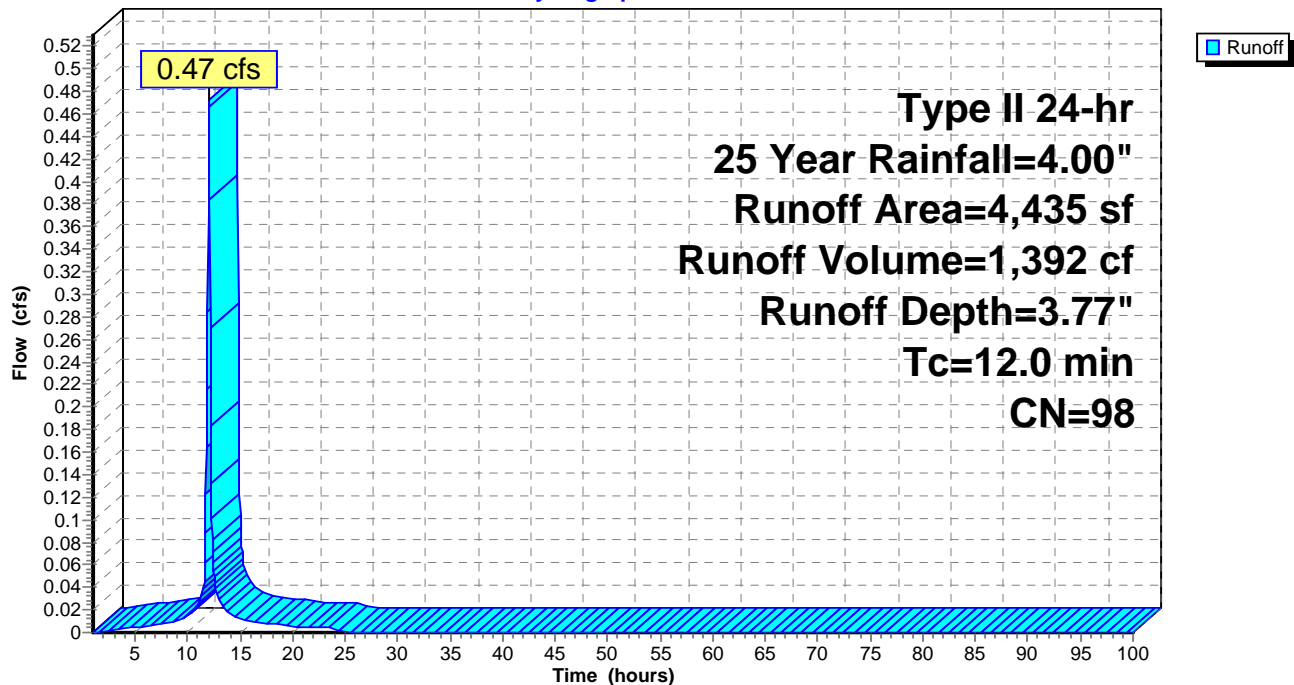
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
56	80	>75% Grass cover, Good, HSG D
4,379	98	Paved parking, HSG D
4,435	98	Weighted Average
56		1.26% Pervious Area
4,379		98.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 19B: Area 19B**

Hydrograph



**Summary for Subcatchment 22: Area 22**

Runoff = 0.36 cfs @ 12.03 hrs, Volume= 1,027 cf, Depth= 3.65"

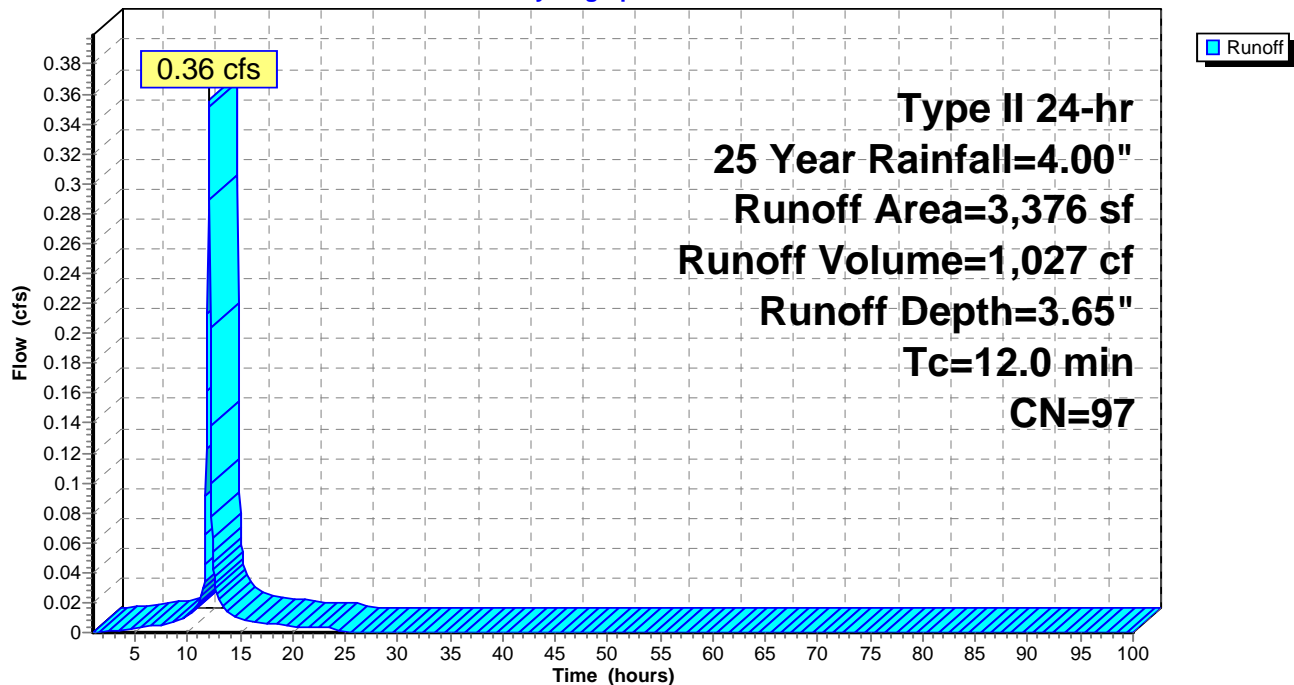
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
150	80	>75% Grass cover, Good, HSG D
3,226	98	Paved parking, HSG D
3,376	97	Weighted Average
150		4.44% Pervious Area
3,226		95.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 22: Area 22**

Hydrograph



**Summary for Subcatchment 23: Area 23**

Runoff = 0.19 cfs @ 12.03 hrs, Volume= 560 cf, Depth= 3.65"

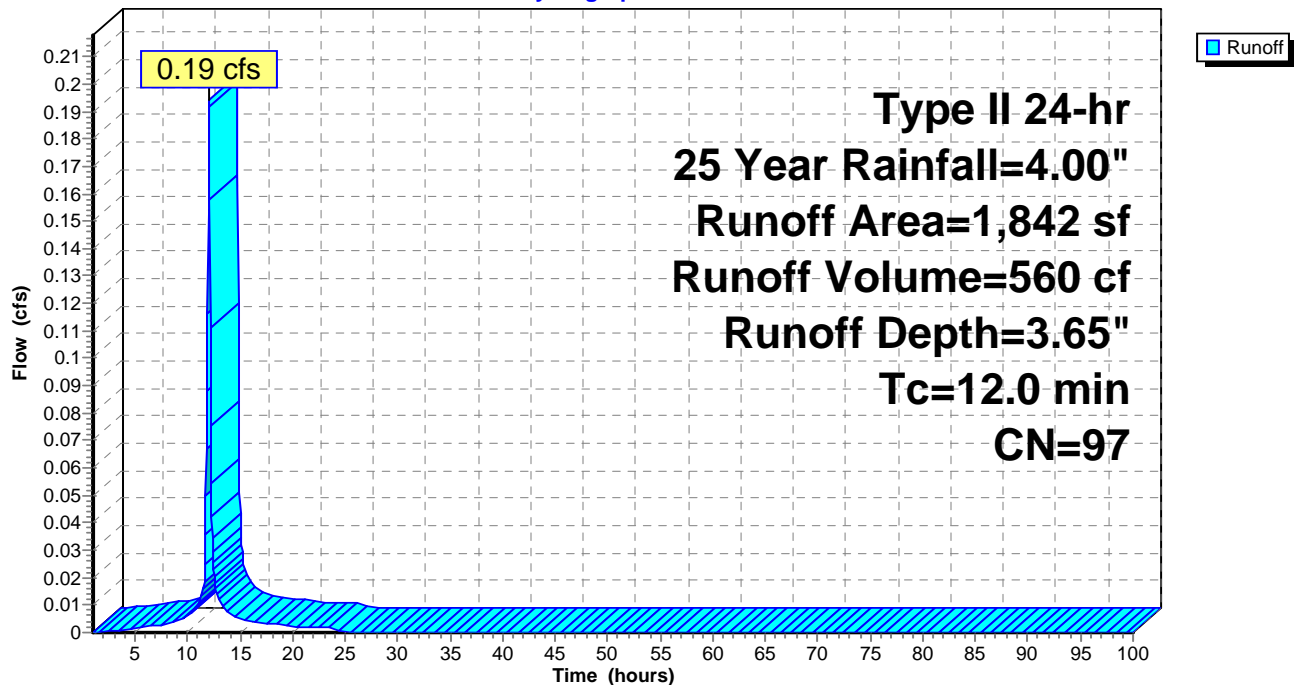
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
150	80	>75% Grass cover, Good, HSG D
1,692	98	Paved parking, HSG D
1,842	97	Weighted Average
150		8.14% Pervious Area
1,692		91.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 23: Area 23**

Hydrograph



**Summary for Subcatchment 24: Area 24**

Runoff = 1.52 cfs @ 12.03 hrs, Volume= 4,470 cf, Depth= 3.77"

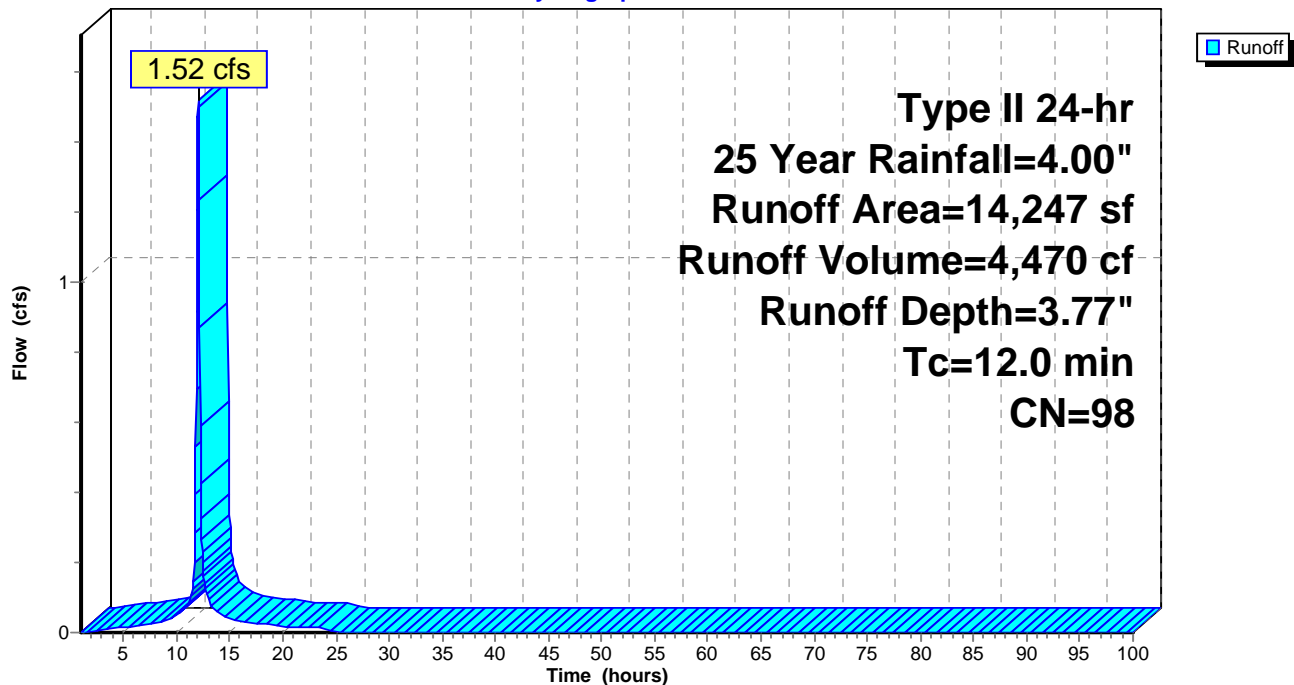
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 25 Year Rainfall=4.00"

Area (sf)	CN	Description
14,163	98	Paved parking, HSG D
84	80	>75% Grass cover, Good, HSG D
14,247	98	Weighted Average
84		0.59% Pervious Area
14,163		99.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 24: Area 24**

Hydrograph



**Summary for Pond 23P: DS 36**

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 3.52" for 25 Year event  
 Inflow = 0.67 cfs @ 12.04 hrs, Volume= 1,767 cf  
 Outflow = 0.67 cfs @ 12.04 hrs, Volume= 1,769 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.67 cfs @ 12.04 hrs, Volume= 1,769 cf

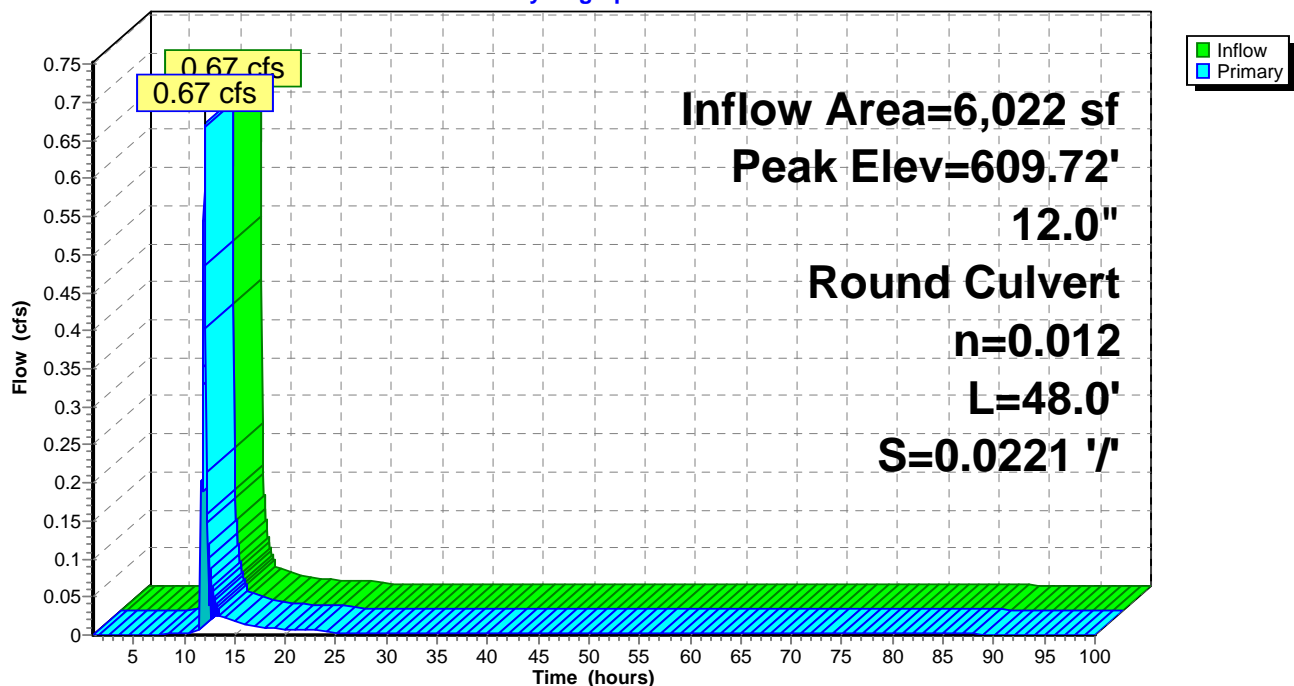
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.72' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	609.10'	<b>12.0" Round Culvert</b> L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 609.10' / 608.04' S= 0.0221 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.67 cfs @ 12.04 hrs HW=609.68' TW=609.50' (Dynamic Tailwater)  
 1=Culvert (Outlet Controls 0.67 cfs @ 2.03 fps)

**Pond 23P: DS 36****Hydrograph**



**Summary for Pond 24P: DS 40**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=49)

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 3.27" for 25 Year event  
 Inflow = 0.63 cfs @ 12.05 hrs, Volume= 919 cf  
 Outflow = 0.63 cfs @ 12.05 hrs, Volume= 917 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.63 cfs @ 12.05 hrs, Volume= 917 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

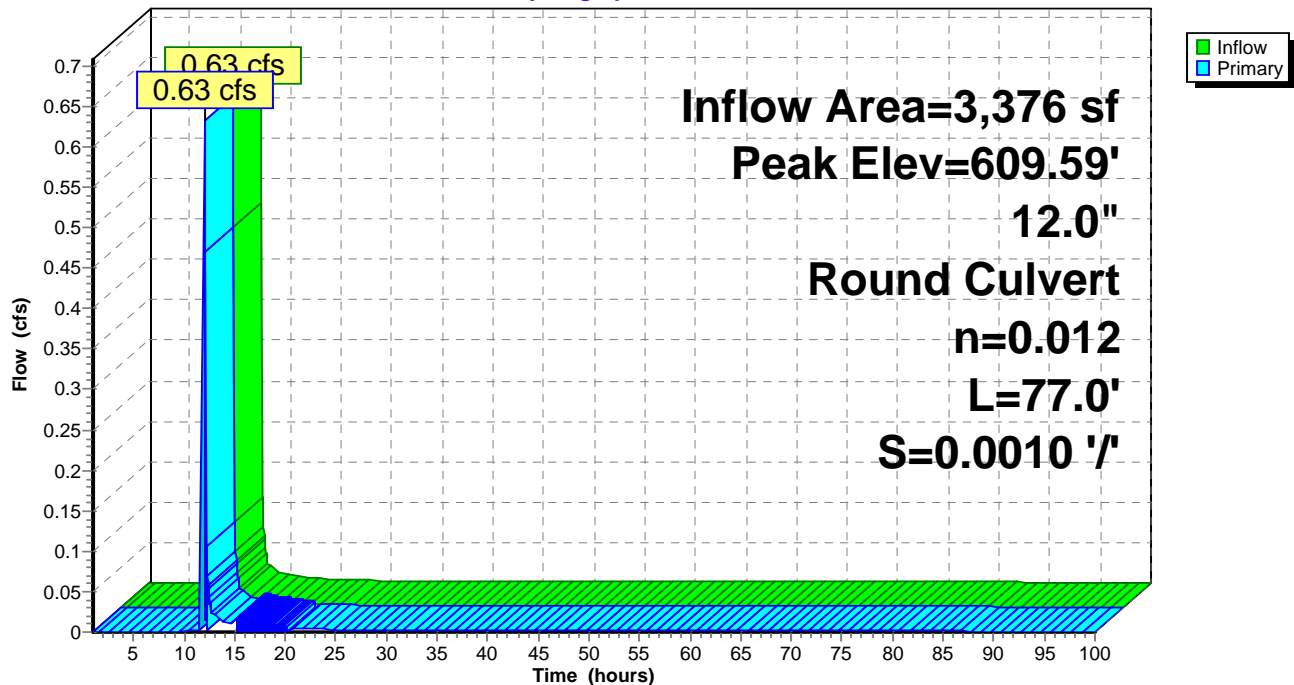
Peak Elev= 609.59' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.18'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.18' / 608.10' S= 0.0010 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.63 cfs @ 12.05 hrs HW=609.59' TW=609.55' (Dynamic Tailwater)

↑1=Culvert (Outlet Controls 0.63 cfs @ 0.80 fps)

**Pond 24P: DS 40****Hydrograph**

**Summary for Pond DI 252: DI #252 - ELM ST SEWER**

[80] Warning: Exceeded Pond 24P by 0.29' @ 11.85 hrs (0.94 cfs 16,559 cf)

[80] Warning: Exceeded Pond DS41 by 1.46' @ 2.25 hrs (0.00 cfs 63 cf)

Inflow Area = 29,922 sf, 98.00% Impervious, Inflow Depth = 3.61" for 25 Year event  
 Inflow = 3.27 cfs @ 12.04 hrs, Volume= 8,995 cf  
 Outflow = 3.27 cfs @ 12.04 hrs, Volume= 8,996 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 3.27 cfs @ 12.04 hrs, Volume= 9,002 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

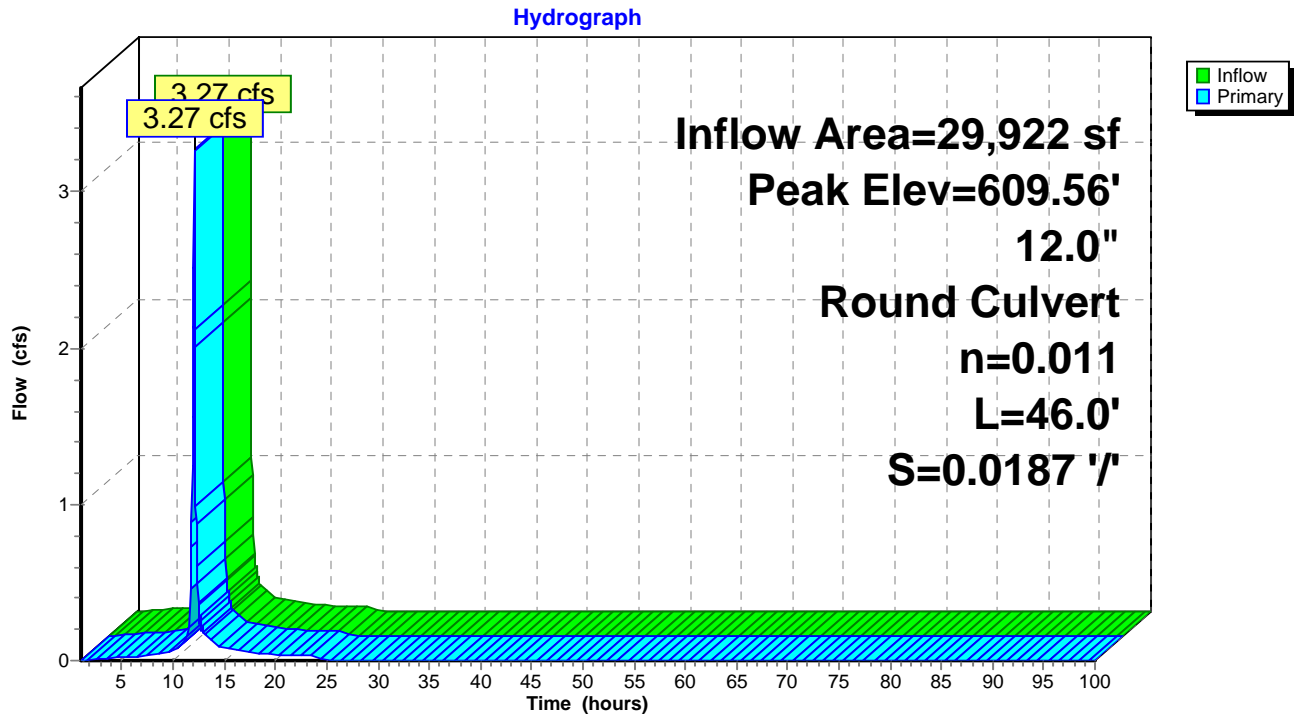
Peak Elev= 609.56' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.31'	<b>12.0" Round Culvert</b> L= 46.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.31' / 607.45' S= 0.0187 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

**Primary OutFlow** Max=3.19 cfs @ 12.04 hrs HW=609.52' (Free Discharge)

↑1=Culvert (Inlet Controls 3.19 cfs @ 4.06 fps)

**Pond DI 252: DI #252 - ELM ST SEWER**

**Summary for Pond DS 35: Planter PB-1C**

[93] Warning: Storage range exceeded by 0.08'

[90] Warning: Qout&gt;Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=12)

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 3.77" for 25 Year event  
 Inflow = 0.64 cfs @ 12.03 hrs, Volume= 1,889 cf  
 Outflow = 0.67 cfs @ 12.04 hrs, Volume= 1,767 cf, Atten= 0%, Lag= 0.6 min  
 Primary = 0.67 cfs @ 12.04 hrs, Volume= 1,767 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 613.36' @ 12.04 hrs Surf.Area= 200 sf Storage= 446 cf

Plug-Flow detention time= 574.6 min calculated for 1,767 cf (94% of inflow)  
 Center-of-Mass det. time= 536.8 min ( 1,290.3 - 753.5 )

Volume	Invert	Avail.Storage	Storage Description
#1	608.28'	446 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.28	200	0.0	0	0
611.78	200	40.0	280	280
611.79	200	20.0	0	280
613.11	200	50.0	132	412
613.28	200	100.0	34	446

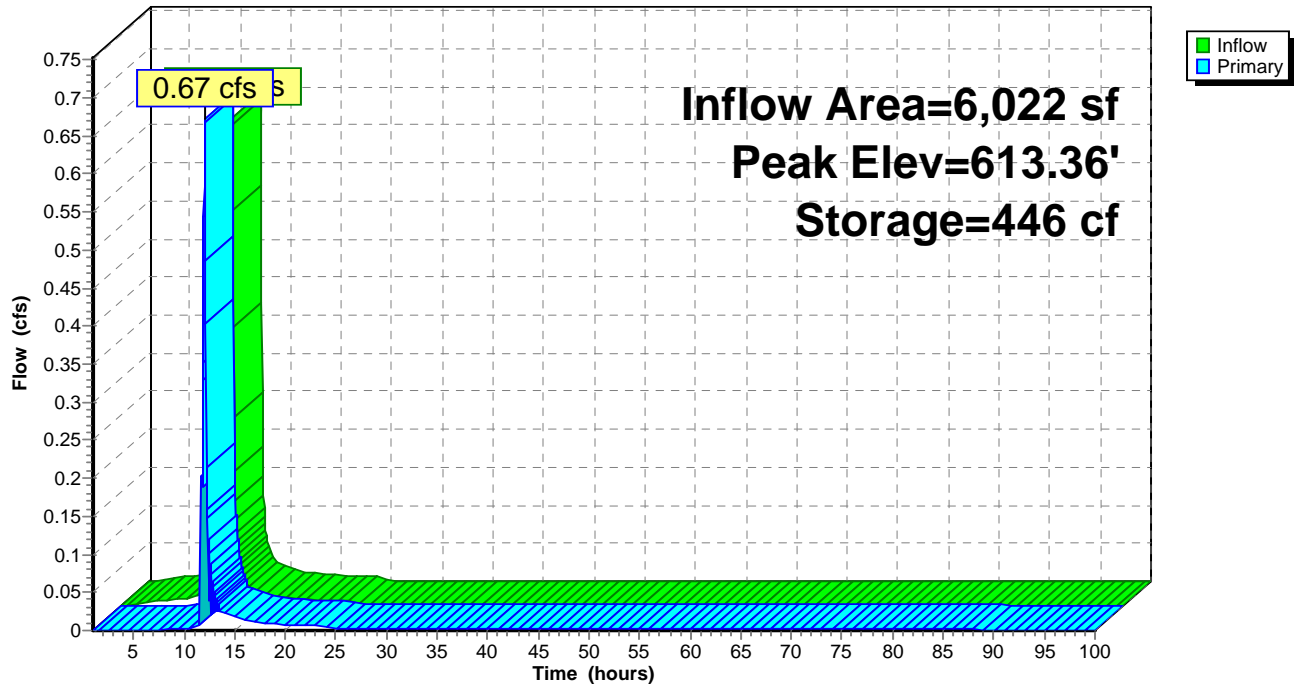
Device	Routing	Invert	Outlet Devices
#1	Primary	609.81'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.81' / 609.75' S= 0.0120 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	608.78'	<b>6.0" Round Culvert</b> L= 48.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.78' / 608.78' S= 0.0000 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.28'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.27'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.65 cfs @ 12.04 hrs HW=613.36' TW=609.68' (Dynamic Tailwater)

1=Culvert (Passes 0.65 cfs of 1.72 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.53 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.65 cfs @ 0.95 fps)

**Pond DS 35: Planter PB-1C**

Hydrograph



**Summary for Pond DS 39: Planter PB-3C**

[93] Warning: Storage range exceeded by 0.07'

[90] Warning: Qout&gt;Qin may require smaller dt or Finer Routing

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=4)

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 3.65" for 25 Year event  
 Inflow = 0.36 cfs @ 12.03 hrs, Volume= 1,027 cf  
 Outflow = 0.63 cfs @ 12.05 hrs, Volume= 919 cf, Atten= 0%, Lag= 1.2 min  
 Primary = 0.63 cfs @ 12.05 hrs, Volume= 919 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.86' @ 12.05 hrs Surf.Area= 202 sf Storage= 429 cf

Plug-Flow detention time= 1,014.4 min calculated for 919 cf (89% of inflow)  
 Center-of-Mass det. time= 960.3 min ( 1,722.7 - 762.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	606.90'	429 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

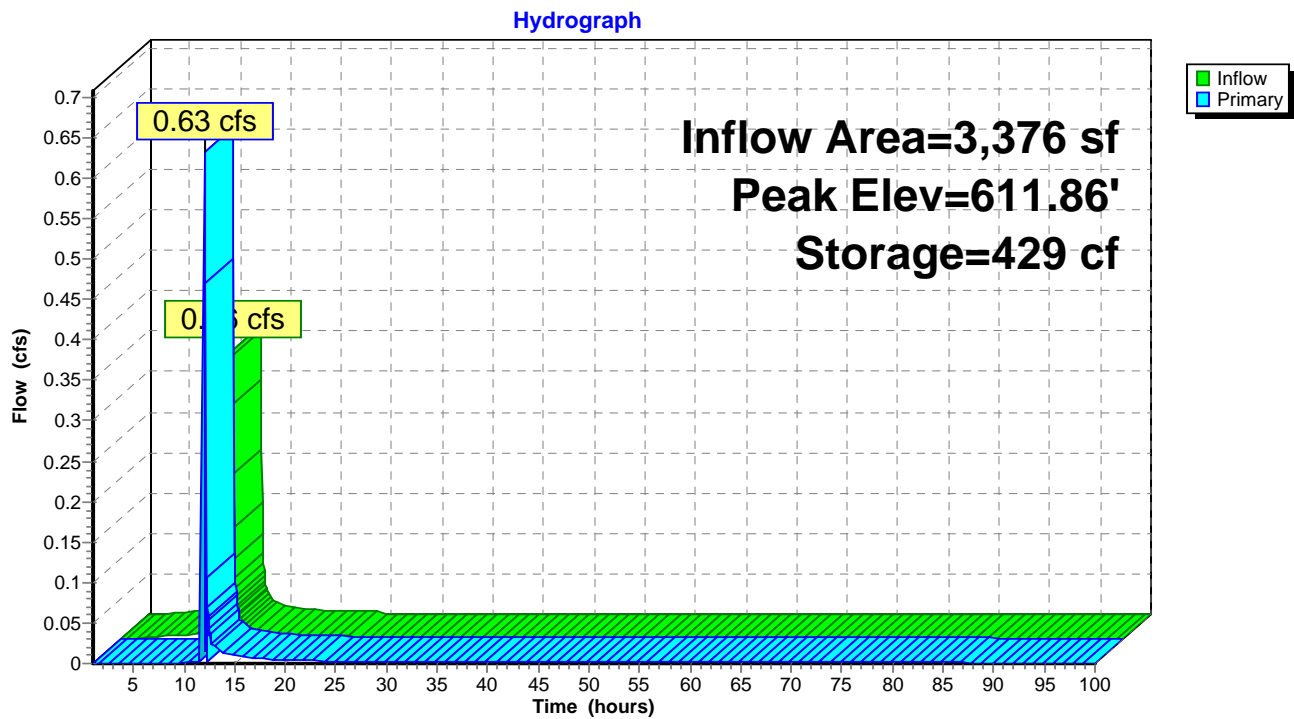
Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.90	202	0.0	0	0
610.40	202	40.0	283	283
610.41	202	20.0	0	283
611.73	202	50.0	133	417
611.79	202	100.0	12	429

Device	Routing	Invert	Outlet Devices
#1	Primary	608.24'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.24' / 608.18' S= 0.0120 '/ Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	607.39'	<b>6.0" Round Culvert</b> L= 59.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 607.39' / 607.39' S= 0.0000 '/ Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	606.90'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	611.78'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.63 cfs @ 12.05 hrs HW=611.86' TW=609.59' (Dynamic Tailwater)

1=Culvert (Passes 0.63 cfs of 1.43 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 1.15 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate (Weir Controls 0.63 cfs @ 0.94 fps)

Pond DS 39: Planter PB-3C



**Summary for Pond DS41: Planter-PB-4C**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=4)

Inflow Area = 1,842 sf, 91.86% Impervious, Inflow Depth = 3.65" for 25 Year event  
 Inflow = 0.19 cfs @ 12.03 hrs, Volume= 560 cf  
 Outflow = 0.01 cfs @ 14.95 hrs, Volume= 446 cf, Atten= 97%, Lag= 175.2 min  
 Primary = 0.01 cfs @ 14.95 hrs, Volume= 446 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.88' @ 14.95 hrs Surf.Area= 202 sf Storage= 450 cf

Plug-Flow detention time= 2,166.6 min calculated for 446 cf (79% of inflow)  
 Center-of-Mass det. time= 2,086.7 min ( 2,849.1 - 762.4 )

Volume	Invert	Avail.Storage	Storage Description
#1	606.89'	451 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.89	202	0.0	0	0
610.38	202	40.0	282	282
610.39	202	20.0	0	282
611.72	202	50.0	134	417
611.89	202	100.0	34	451

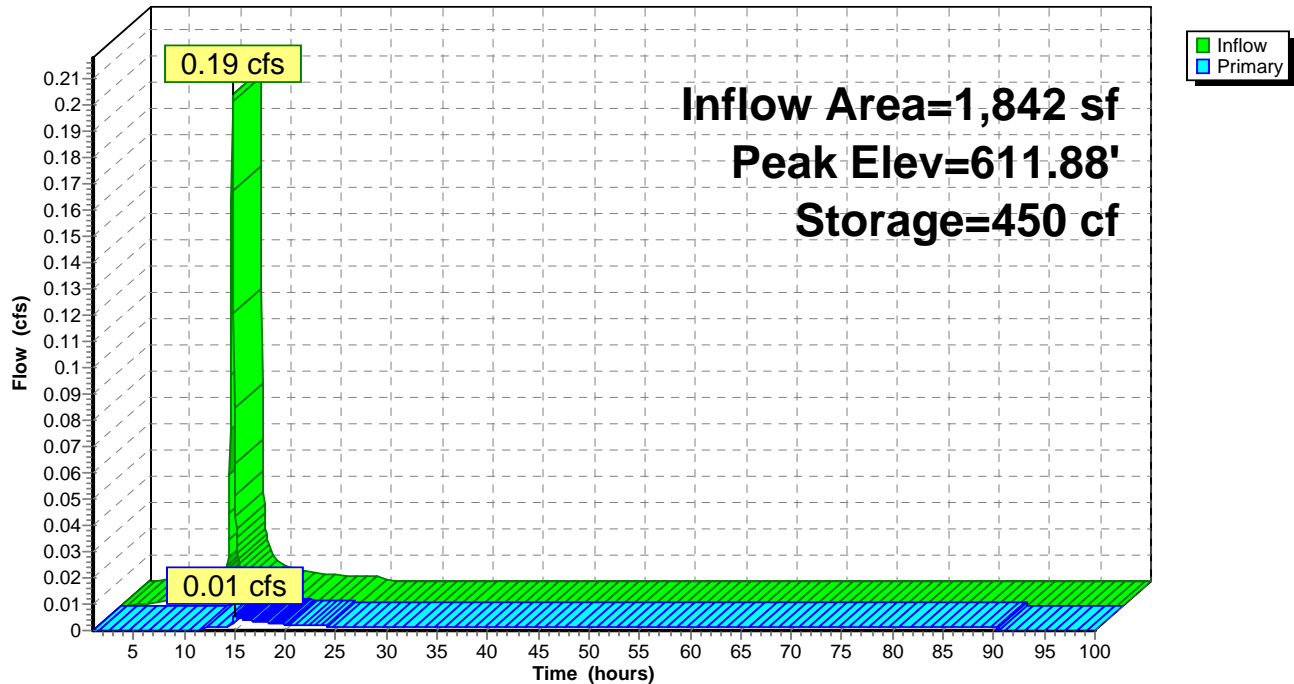
Device	Routing	Invert	Outlet Devices
#1	Primary	608.24'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.24' / 608.18' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	607.39'	<b>6.0" Round Culvert</b> L= 49.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 607.39' / 607.39' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	606.89'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	611.88'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.01 cfs @ 14.95 hrs HW=611.88' TW=608.45' (Dynamic Tailwater)

- 1=Culvert (Passes 0.01 cfs of 1.74 cfs potential flow)
- 2=Culvert (Passes 0.00 cfs of 1.50 cfs potential flow)
- 3=Exfiltration (Exfiltration Controls 0.00 cfs)
- 4=Orifice/Grate (Weir Controls 0.00 cfs @ 0.17 fps)

## Pond DS41: Planter-PB-4C

Hydrograph





**Genesee St Final**

Prepared by Microsoft

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*Type II 24-hr 50% Rainfall=0.35"*

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

<b>Subcatchment 19: Area 19</b>	Runoff Area=6,022 sf 97.38% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.04 cfs 93 cf
<b>Subcatchment 19B: Area 19B</b>	Runoff Area=4,435 sf 98.74% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.03 cfs 69 cf
<b>Subcatchment 22: Area 22</b>	Runoff Area=3,376 sf 95.56% Impervious Runoff Depth=0.14" Tc=12.0 min CN=97 Runoff=0.02 cfs 39 cf
<b>Subcatchment 23: Area 23</b>	Runoff Area=1,842 sf 91.86% Impervious Runoff Depth=0.14" Tc=12.0 min CN=97 Runoff=0.01 cfs 21 cf
<b>Subcatchment 24: Area 24</b>	Runoff Area=14,247 sf 99.41% Impervious Runoff Depth=0.19" Tc=12.0 min CN=98 Runoff=0.09 cfs 221 cf
<b>Pond 23P: DS 36</b>	Peak Elev=609.10' Inflow=0.00 cfs 0 cf 12.0" Round Culvert n=0.012 L=48.0' S=0.0221 '/' Outflow=0.00 cfs 0 cf
<b>Pond 24P: DS 40</b>	Peak Elev=608.18' Inflow=0.00 cfs 0 cf 12.0" Round Culvert n=0.012 L=77.0' S=0.0010 '/' Outflow=0.00 cfs 0 cf
<b>Pond DI 252: DI #252 - ELM ST SEWER</b>	Peak Elev=608.47' Inflow=0.11 cfs 290 cf 12.0" Round Culvert n=0.011 L=46.0' S=0.0187 '/' Outflow=0.11 cfs 290 cf
<b>Pond DS 35: Planter PB-1C</b>	Peak Elev=609.45' Storage=93 cf Inflow=0.04 cfs 93 cf Outflow=0.00 cfs 0 cf
<b>Pond DS 39: Planter PB-3C</b>	Peak Elev=607.38' Storage=39 cf Inflow=0.02 cfs 39 cf Outflow=0.00 cfs 0 cf
<b>Pond DS41: Planter-PB-4C</b>	Peak Elev=607.15' Storage=21 cf Inflow=0.01 cfs 21 cf Outflow=0.00 cfs 0 cf

**Total Runoff Area = 29,922 sf Runoff Volume = 444 cf Average Runoff Depth = 0.18"**  
**2.00% Pervious = 598 sf 98.00% Impervious = 29,324 sf**

**Summary for Subcatchment 19: Area 19**

Runoff = 0.04 cfs @ 12.04 hrs, Volume= 93 cf, Depth= 0.19"

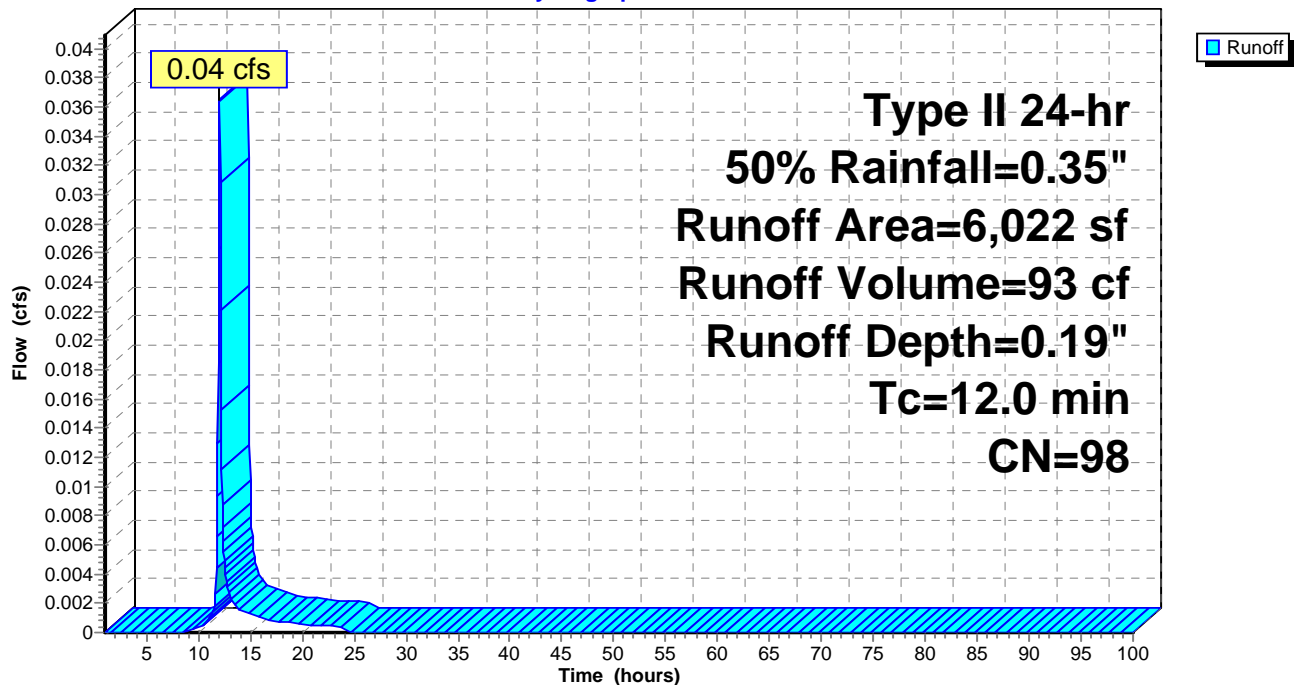
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
158	80	>75% Grass cover, Good, HSG D
5,864	98	Paved parking, HSG D
6,022	98	Weighted Average
158		2.62% Pervious Area
5,864		97.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 19: Area 19**

Hydrograph



**Summary for Subcatchment 19B: Area 19B**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 69 cf, Depth= 0.19"

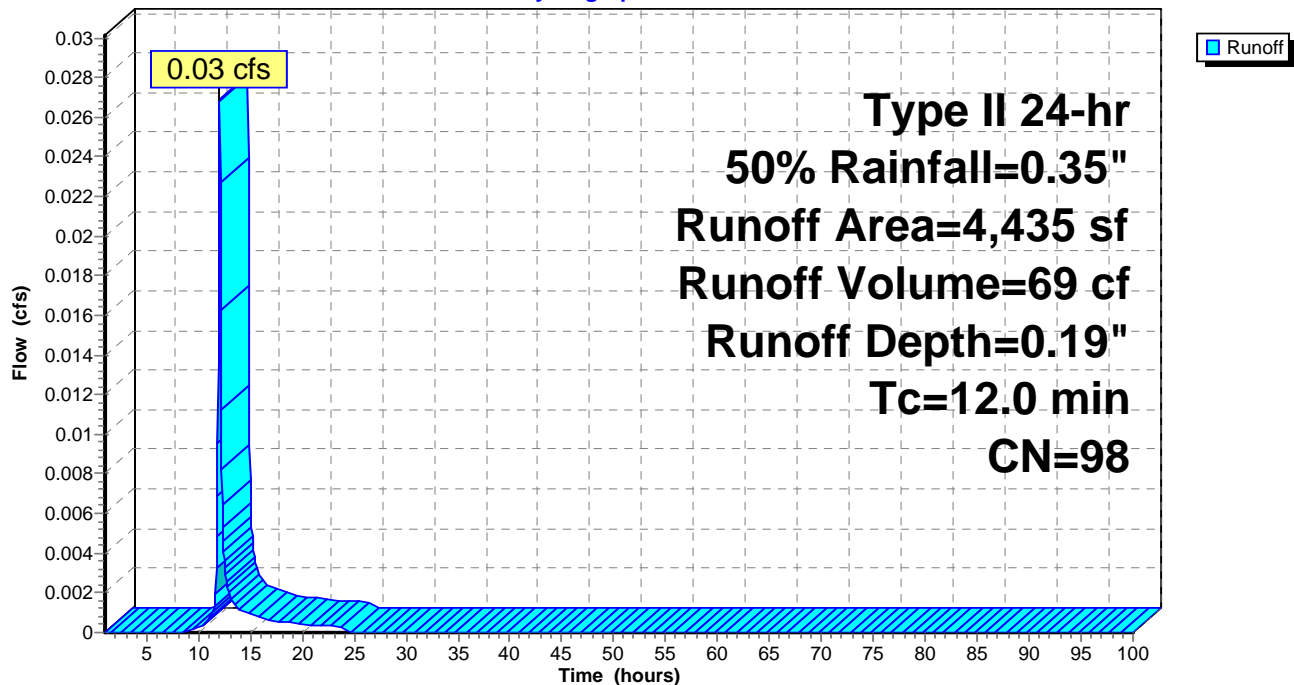
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
56	80	>75% Grass cover, Good, HSG D
4,379	98	Paved parking, HSG D
4,435	98	Weighted Average
56		1.26% Pervious Area
4,379		98.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 19B: Area 19B**

Hydrograph



**Summary for Subcatchment 22: Area 22**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 39 cf, Depth= 0.14"

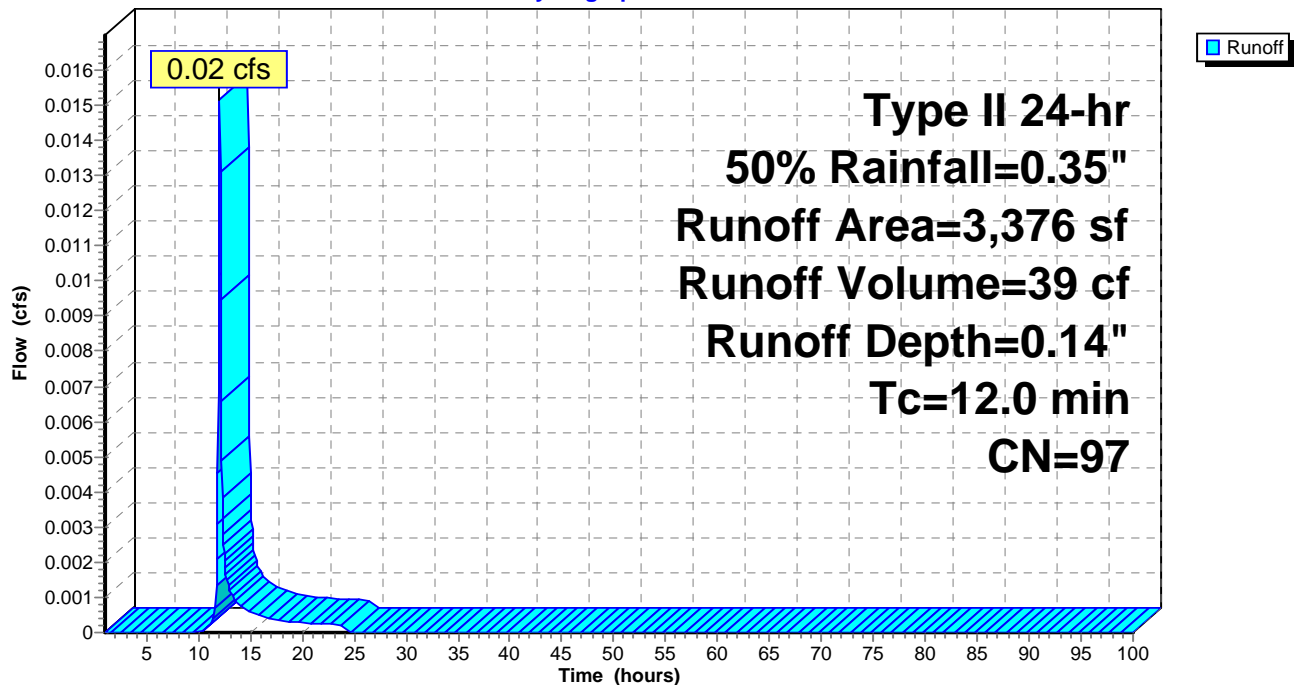
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
150	80	>75% Grass cover, Good, HSG D
3,226	98	Paved parking, HSG D
3,376	97	Weighted Average
150		4.44% Pervious Area
3,226		95.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 22: Area 22**

Hydrograph



**Summary for Subcatchment 23: Area 23**

Runoff = 0.01 cfs @ 12.04 hrs, Volume= 21 cf, Depth= 0.14"

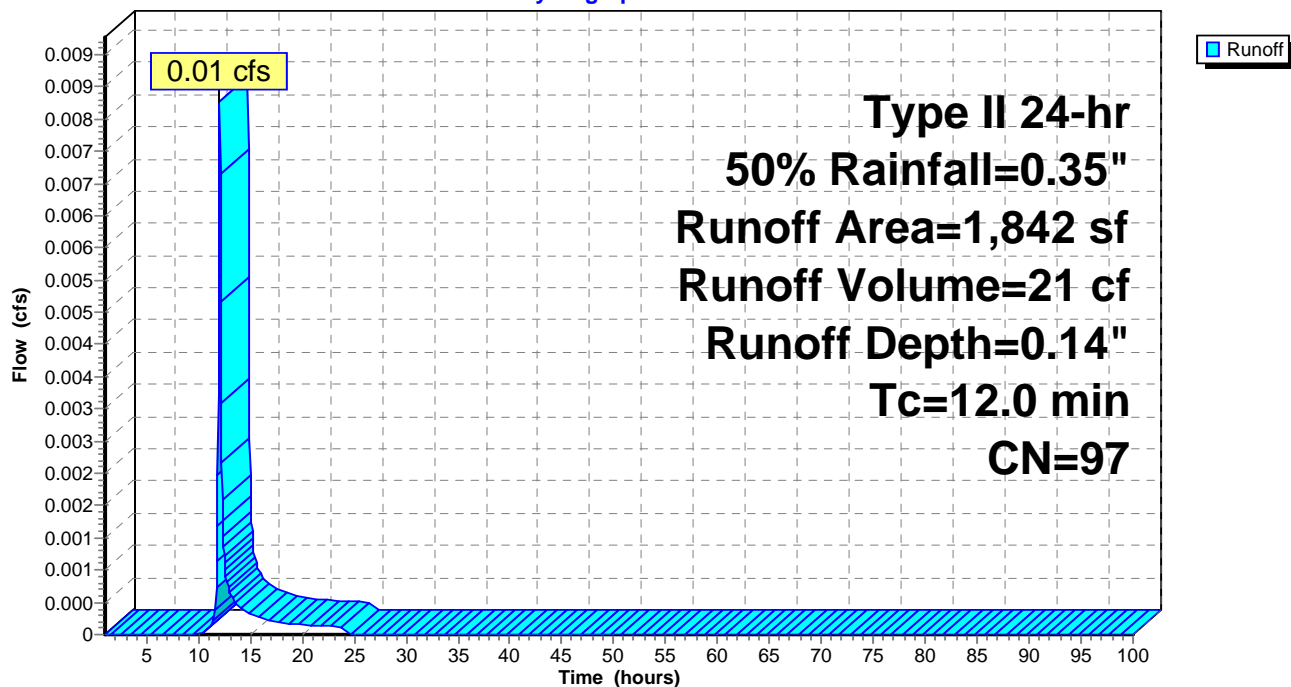
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
150	80	>75% Grass cover, Good, HSG D
1,692	98	Paved parking, HSG D
1,842	97	Weighted Average
150		8.14% Pervious Area
1,692		91.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 23: Area 23**

Hydrograph



**Summary for Subcatchment 24: Area 24**

Runoff = 0.09 cfs @ 12.04 hrs, Volume= 221 cf, Depth= 0.19"

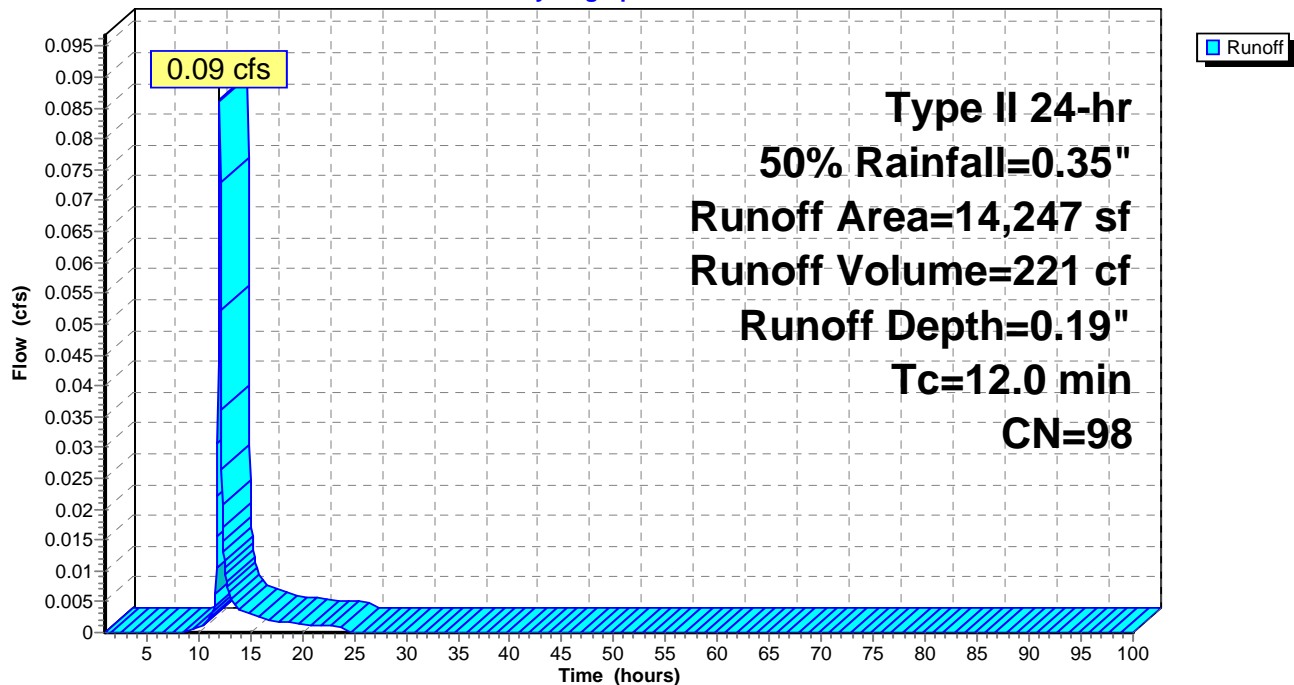
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 50% Rainfall=0.35"

Area (sf)	CN	Description
14,163	98	Paved parking, HSG D
84	80	>75% Grass cover, Good, HSG D
14,247	98	Weighted Average
84		0.59% Pervious Area
14,163		99.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 24: Area 24**

Hydrograph



**Summary for Pond 23P: DS 36**

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 0.00" for 50% event  
 Inflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

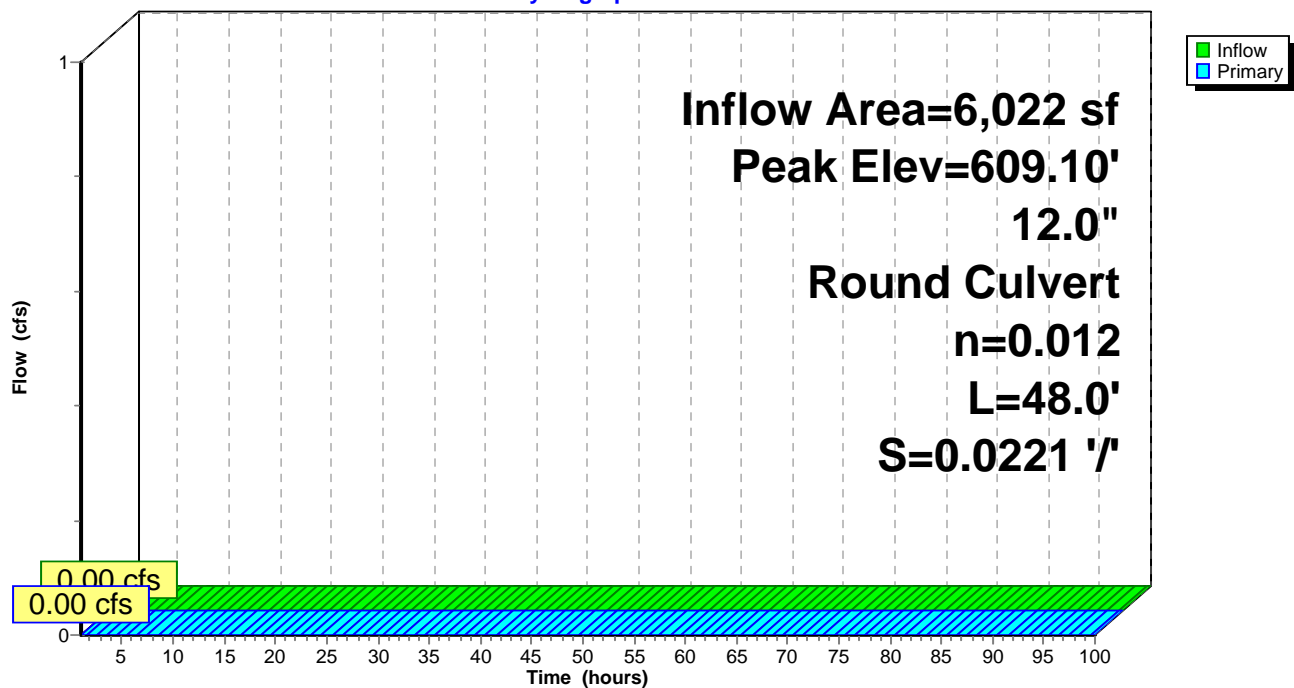
Peak Elev= 609.10' @ 1.00 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	609.10'	<b>12.0" Round Culvert</b> L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 609.10' / 608.04' S= 0.0221 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=609.10' TW=608.31' (Dynamic Tailwater)

↑1=Culvert ( Controls 0.00 cfs)

**Pond 23P: DS 36****Hydrograph**

**Summary for Pond 24P: DS 40**

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 0.00" for 50% event  
 Inflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

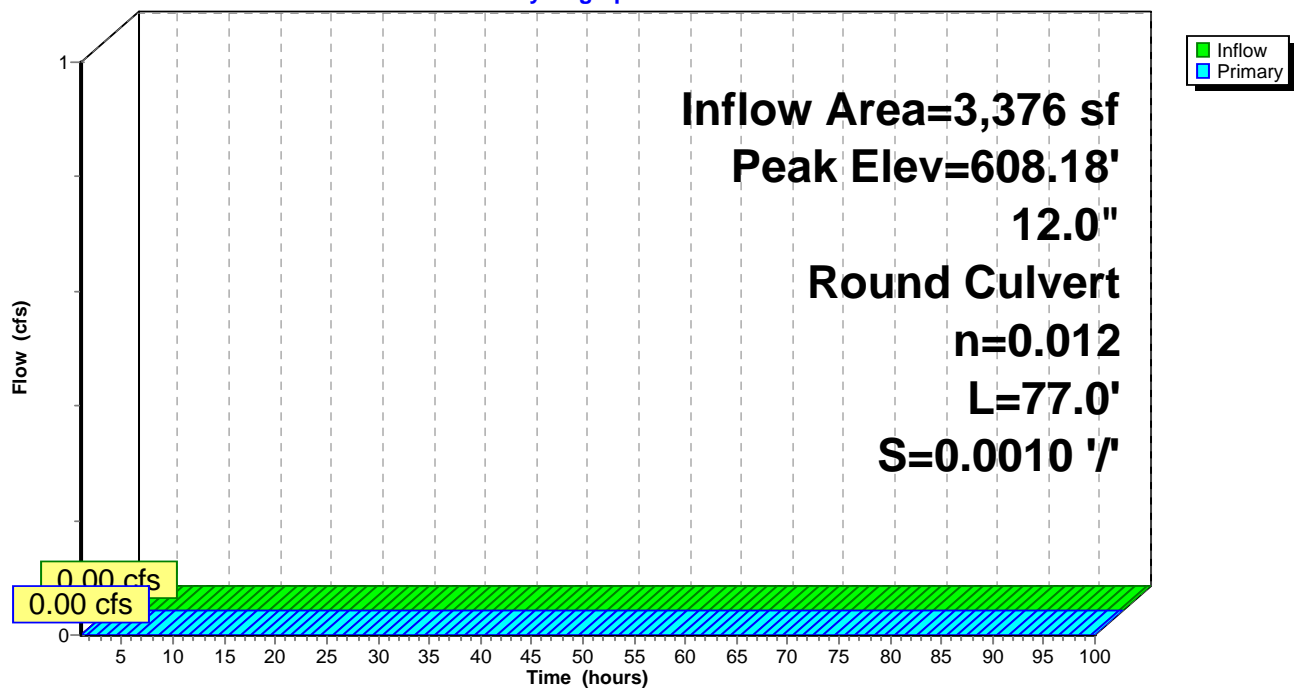
Peak Elev= 608.18' @ 1.00 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.18'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.18' / 608.10' S= 0.0010 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=608.18' TW=608.31' (Dynamic Tailwater)

↑1=Culvert ( Controls 0.00 cfs)

**Pond 24P: DS 40****Hydrograph**



**Summary for Pond DI 252: DI #252 - ELM ST SEWER**

[80] Warning: Exceeded Pond 24P by 0.29' @ 12.05 hrs (0.16 cfs 10,673 cf)

[80] Warning: Exceeded Pond DS41 by 1.53' @ 12.00 hrs (0.00 cfs 500 cf)

Inflow Area = 29,922 sf, 98.00% Impervious, Inflow Depth = 0.12" for 50% event  
 Inflow = 0.11 cfs @ 12.04 hrs, Volume= 290 cf  
 Outflow = 0.11 cfs @ 12.04 hrs, Volume= 290 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.11 cfs @ 12.04 hrs, Volume= 290 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

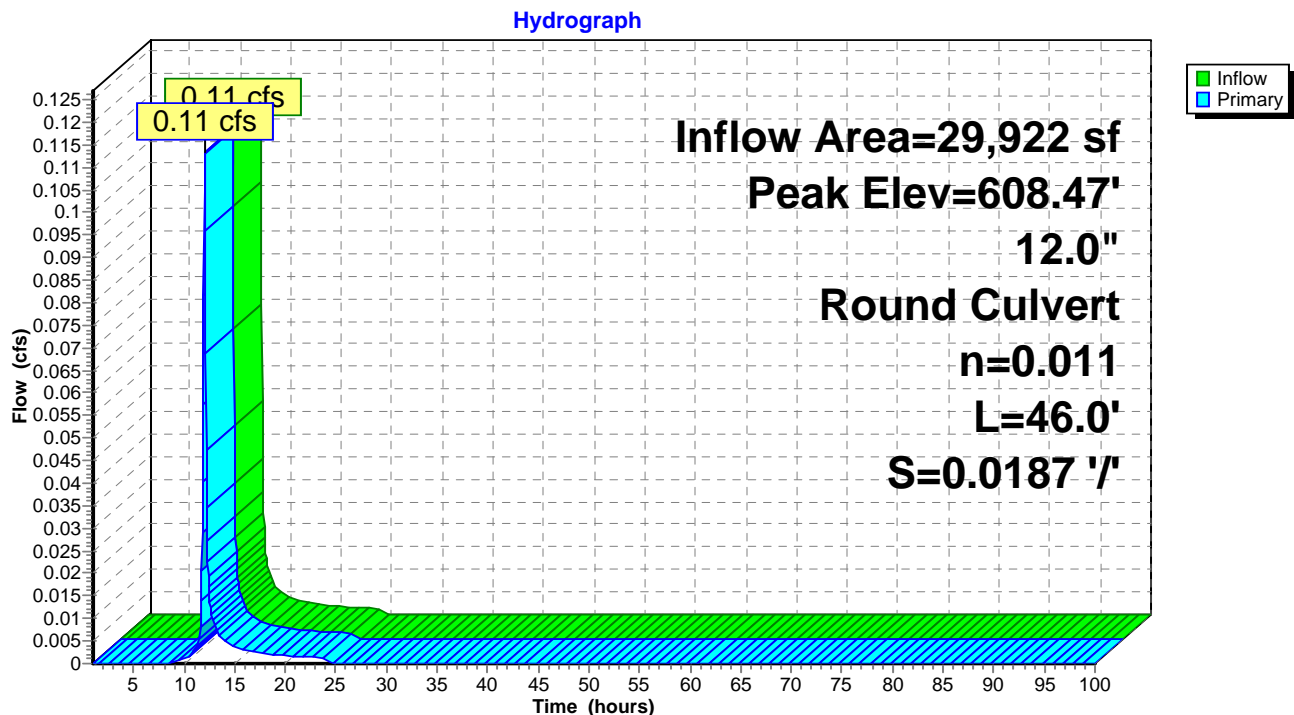
Peak Elev= 608.47' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.31'	<b>12.0" Round Culvert</b> L= 46.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.31' / 607.45' S= 0.0187 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.11 cfs @ 12.04 hrs HW=608.47' (Free Discharge)

↑1=Culvert (Inlet Controls 0.11 cfs @ 1.36 fps)

**Pond DI 252: DI #252 - ELM ST SEWER**

**Summary for Pond DS 35: Planter PB-1C**

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 0.19" for 50% event  
 Inflow = 0.04 cfs @ 12.04 hrs, Volume= 93 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 609.45' @ 24.70 hrs Surf.Area= 200 sf Storage= 93 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	608.28'	446 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.28	200	0.0	0	0
611.78	200	40.0	280	280
611.79	200	20.0	0	280
613.11	200	50.0	132	412
613.28	200	100.0	34	446

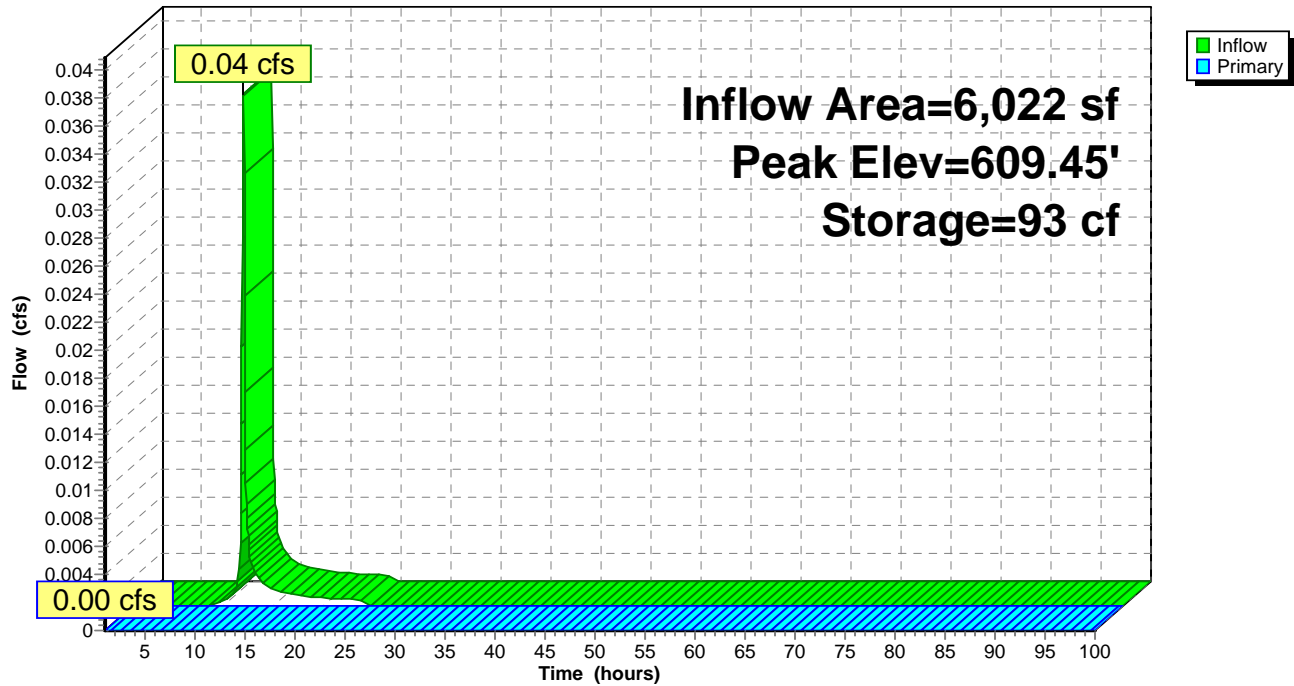
Device	Routing	Invert	Outlet Devices
#1	Primary	609.81'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.81' / 609.75' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	608.78'	<b>6.0" Round Culvert</b> L= 48.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.78' / 608.78' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.28'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.27'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=608.28' TW=609.10' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 35: Planter PB-1C

Hydrograph



**Summary for Pond DS 39: Planter PB-3C**

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 0.14" for 50% event  
 Inflow = 0.02 cfs @ 12.04 hrs, Volume= 39 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 607.38' @ 24.70 hrs Surf.Area= 202 sf Storage= 39 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	606.90'	429 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.90	202	0.0	0	0
610.40	202	40.0	283	283
610.41	202	20.0	0	283
611.73	202	50.0	133	417
611.79	202	100.0	12	429

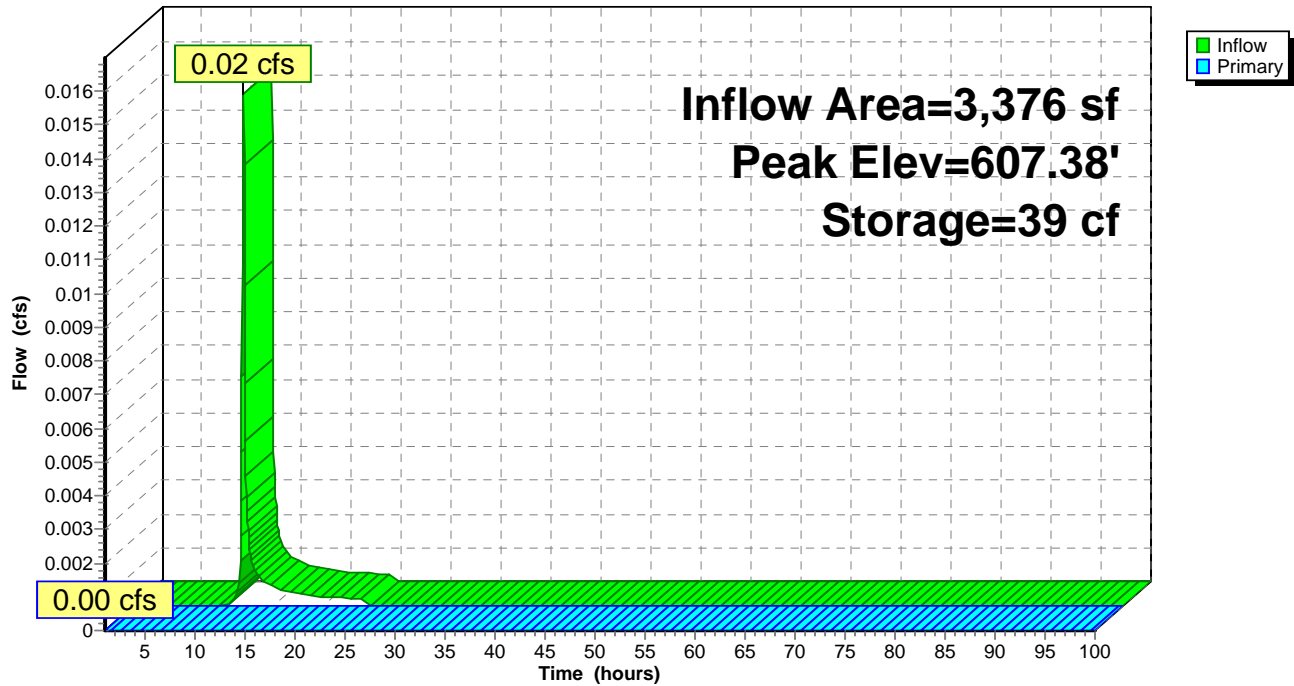
Device	Routing	Invert	Outlet Devices
#1	Primary	608.24'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.24' / 608.18' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	607.39'	<b>6.0" Round Culvert</b> L= 59.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 607.39' / 607.39' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	606.90'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	611.78'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=606.90' TW=608.18' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

Pond DS 39: Planter PB-3C

Hydrograph



**Summary for Pond DS41: Planter-PB-4C**

Inflow Area = 1,842 sf, 91.86% Impervious, Inflow Depth = 0.14" for 50% event  
 Inflow = 0.01 cfs @ 12.04 hrs, Volume= 21 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 607.15' @ 24.70 hrs Surf.Area= 202 sf Storage= 21 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	606.89'	451 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.89	202	0.0	0	0
610.38	202	40.0	282	282
610.39	202	20.0	0	282
611.72	202	50.0	134	417
611.89	202	100.0	34	451

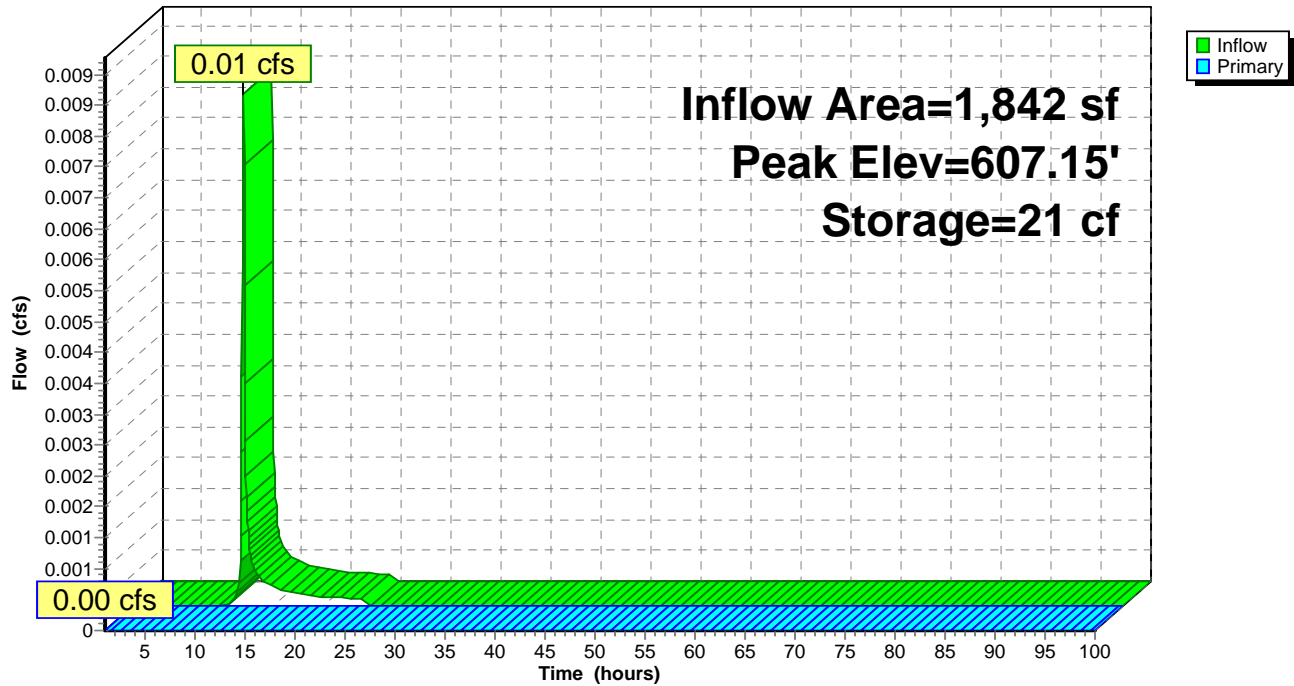
Device	Routing	Invert	Outlet Devices
#1	Primary	608.24'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.24' / 608.18' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	607.39'	<b>6.0" Round Culvert</b> L= 49.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 607.39' / 607.39' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	606.89'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	611.88'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=606.89' TW=608.31' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS41: Planter-PB-4C

Hydrograph



**Genesee St Final**

Prepared by Microsoft

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Type II 24-hr 75% Rainfall=0.50"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 19: Area 19**Runoff Area=6,022 sf 97.38% Impervious Runoff Depth=0.32"  
Tc=12.0 min CN=98 Runoff=0.06 cfs 160 cf**Subcatchment 19B: Area 19B**Runoff Area=4,435 sf 98.74% Impervious Runoff Depth=0.32"  
Tc=12.0 min CN=98 Runoff=0.05 cfs 117 cf**Subcatchment 22: Area 22**Runoff Area=3,376 sf 95.56% Impervious Runoff Depth=0.26"  
Tc=12.0 min CN=97 Runoff=0.03 cfs 72 cf**Subcatchment 23: Area 23**Runoff Area=1,842 sf 91.86% Impervious Runoff Depth=0.26"  
Tc=12.0 min CN=97 Runoff=0.02 cfs 39 cf**Subcatchment 24: Area 24**Runoff Area=14,247 sf 99.41% Impervious Runoff Depth=0.32"  
Tc=12.0 min CN=98 Runoff=0.15 cfs 377 cf**Pond 23P: DS 36**Peak Elev=609.12' Inflow=0.00 cfs 37 cf  
12.0" Round Culvert n=0.012 L=48.0' S=0.0221 '/' Outflow=0.00 cfs 37 cf**Pond 24P: DS 40**Peak Elev=608.18' Inflow=0.00 cfs 0 cf  
12.0" Round Culvert n=0.012 L=77.0' S=0.0010 '/' Outflow=0.00 cfs 0 cf**Pond DI 252: DI #252 - ELM ST SEWER**Peak Elev=608.52' Inflow=0.19 cfs 532 cf  
12.0" Round Culvert n=0.011 L=46.0' S=0.0187 '/' Outflow=0.19 cfs 533 cf**Pond DS 35: Planter PB-1C**Peak Elev=609.85' Storage=126 cf Inflow=0.06 cfs 160 cf  
Outflow=0.00 cfs 37 cf**Pond DS 39: Planter PB-3C**Peak Elev=607.79' Storage=72 cf Inflow=0.03 cfs 72 cf  
Outflow=0.00 cfs 0 cf**Pond DS41: Planter-PB-4C**Peak Elev=607.38' Storage=39 cf Inflow=0.02 cfs 39 cf  
Outflow=0.00 cfs 0 cf**Total Runoff Area = 29,922 sf Runoff Volume = 766 cf Average Runoff Depth = 0.31"**  
**2.00% Pervious = 598 sf 98.00% Impervious = 29,324 sf**



**Summary for Subcatchment 19: Area 19**

Runoff = 0.06 cfs @ 12.04 hrs, Volume= 160 cf, Depth= 0.32"

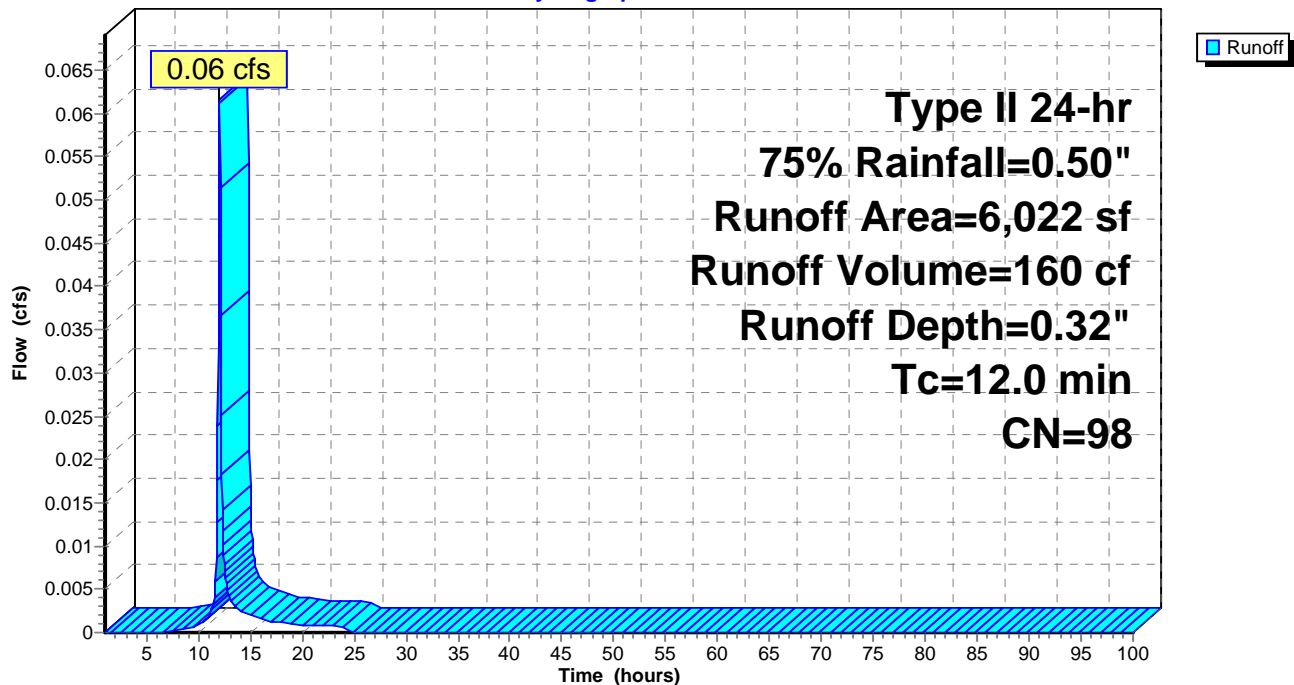
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
158	80	>75% Grass cover, Good, HSG D
5,864	98	Paved parking, HSG D
6,022	98	Weighted Average
158		2.62% Pervious Area
5,864		97.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 19: Area 19**

Hydrograph



**Summary for Subcatchment 19B: Area 19B**

Runoff = 0.05 cfs @ 12.04 hrs, Volume= 117 cf, Depth= 0.32"

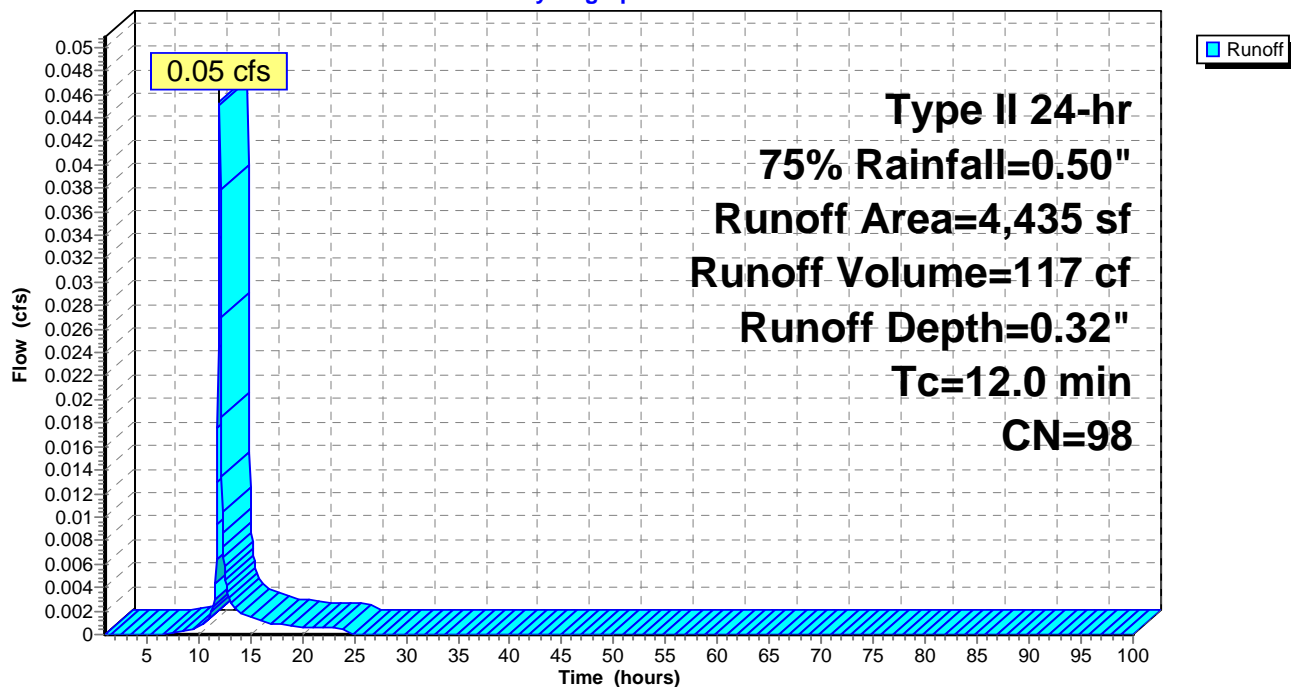
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
56	80	>75% Grass cover, Good, HSG D
4,379	98	Paved parking, HSG D
4,435	98	Weighted Average
56		1.26% Pervious Area
4,379		98.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 19B: Area 19B**

Hydrograph



**Summary for Subcatchment 22: Area 22**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 72 cf, Depth= 0.26"

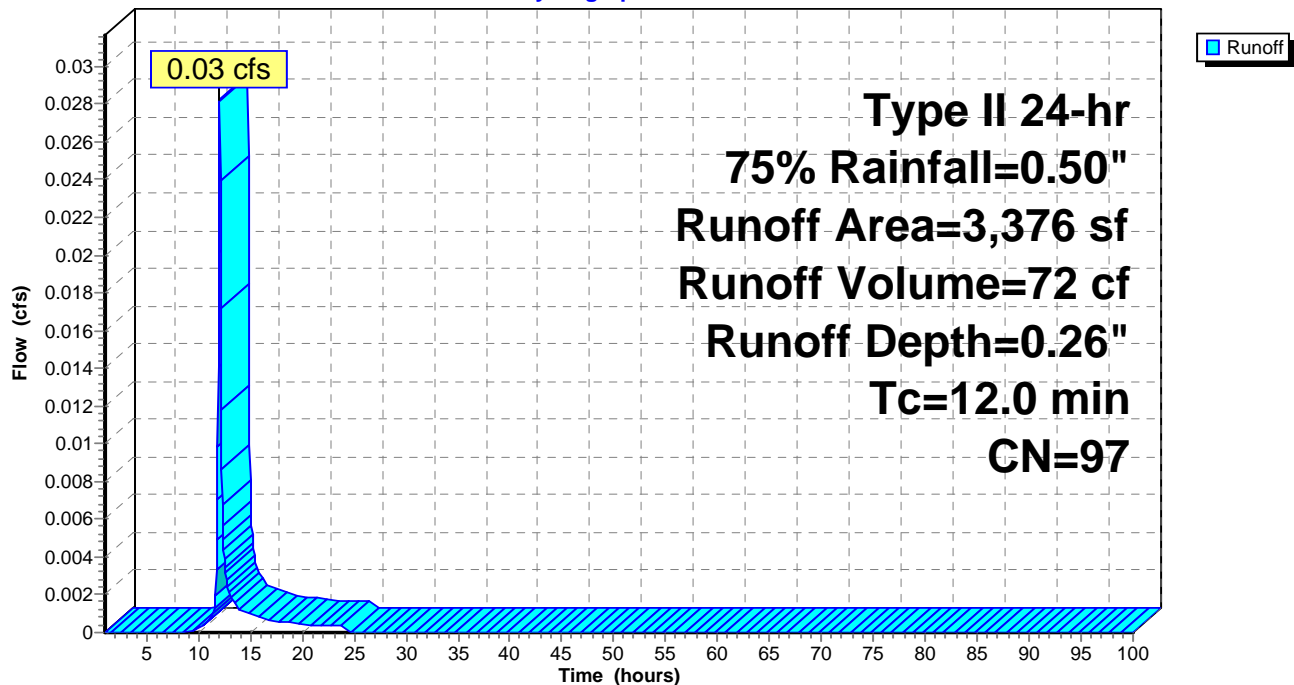
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
150	80	>75% Grass cover, Good, HSG D
3,226	98	Paved parking, HSG D
3,376	97	Weighted Average
150		4.44% Pervious Area
3,226		95.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 22: Area 22**

Hydrograph



**Summary for Subcatchment 23: Area 23**

Runoff = 0.02 cfs @ 12.04 hrs, Volume= 39 cf, Depth= 0.26"

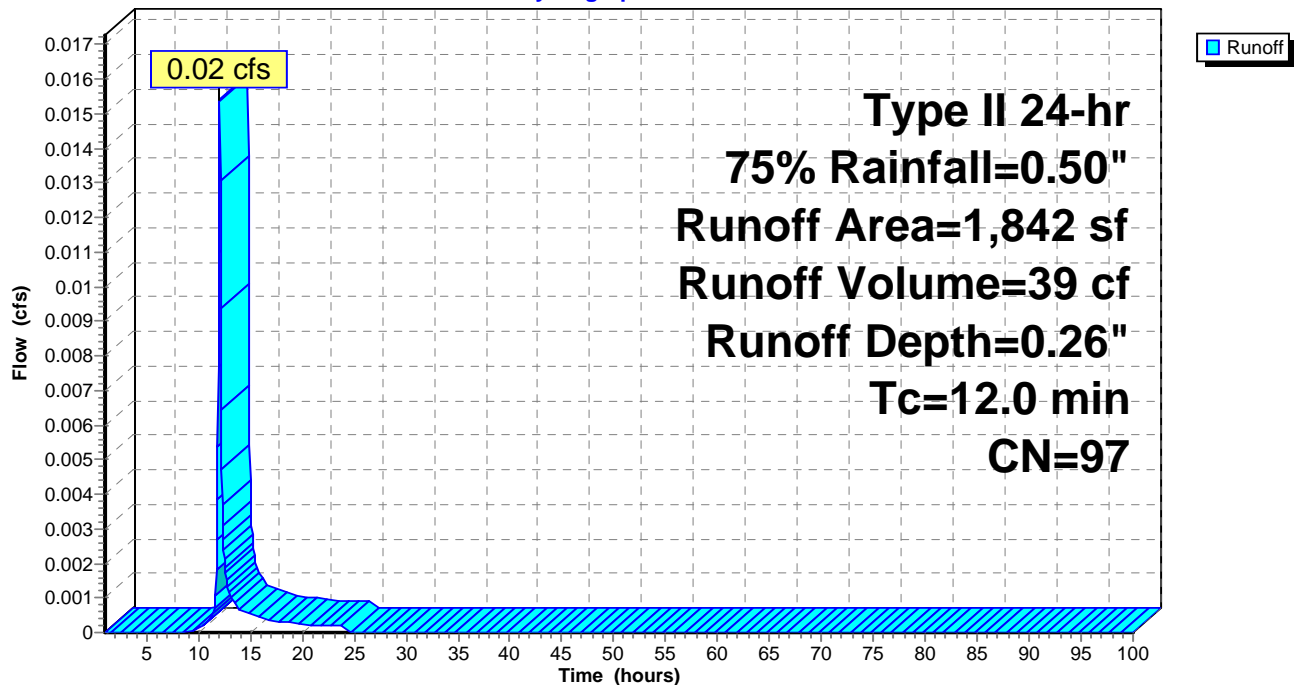
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
150	80	>75% Grass cover, Good, HSG D
1,692	98	Paved parking, HSG D
1,842	97	Weighted Average
150		8.14% Pervious Area
1,692		91.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 23: Area 23**

Hydrograph



**Summary for Subcatchment 24: Area 24**

Runoff = 0.15 cfs @ 12.04 hrs, Volume= 377 cf, Depth= 0.32"

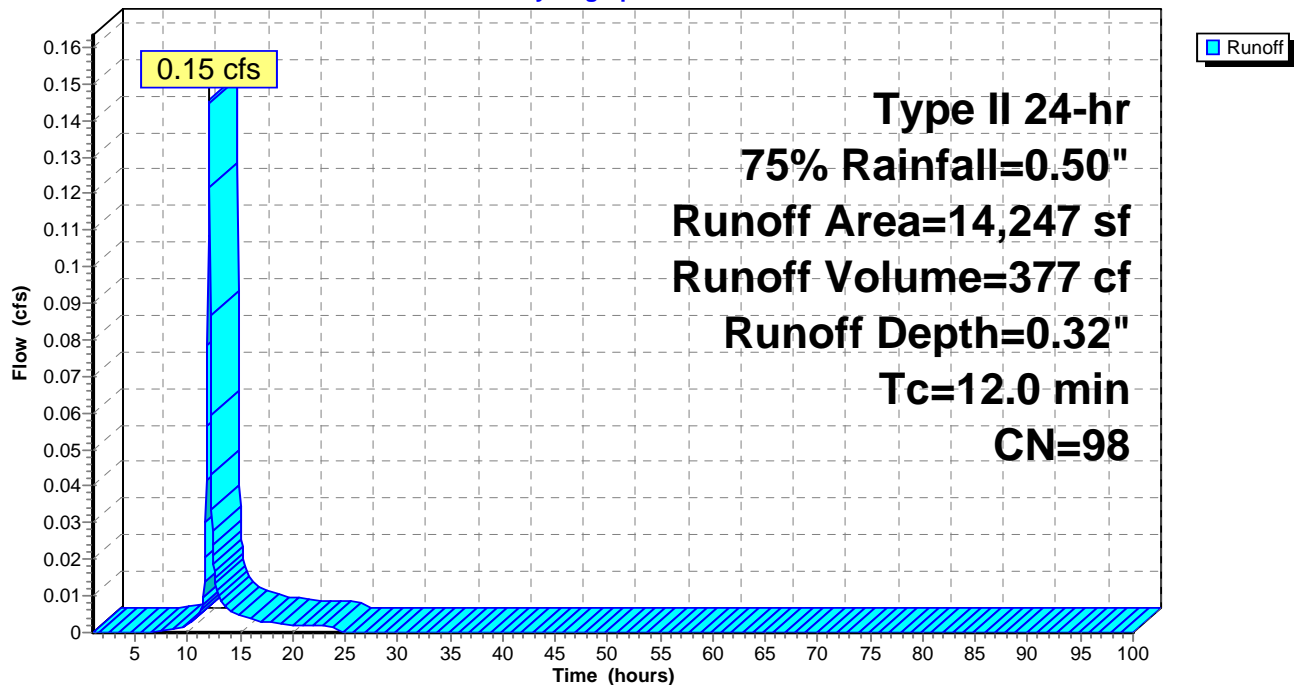
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr 75% Rainfall=0.50"

Area (sf)	CN	Description
14,163	98	Paved parking, HSG D
84	80	>75% Grass cover, Good, HSG D
14,247	98	Weighted Average
84		0.59% Pervious Area
14,163		99.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 24: Area 24**

Hydrograph



**Summary for Pond 23P: DS 36**

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 0.07" for 75% event  
 Inflow = 0.00 cfs @ 17.65 hrs, Volume= 37 cf  
 Outflow = 0.00 cfs @ 15.50 hrs, Volume= 37 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 15.50 hrs, Volume= 37 cf

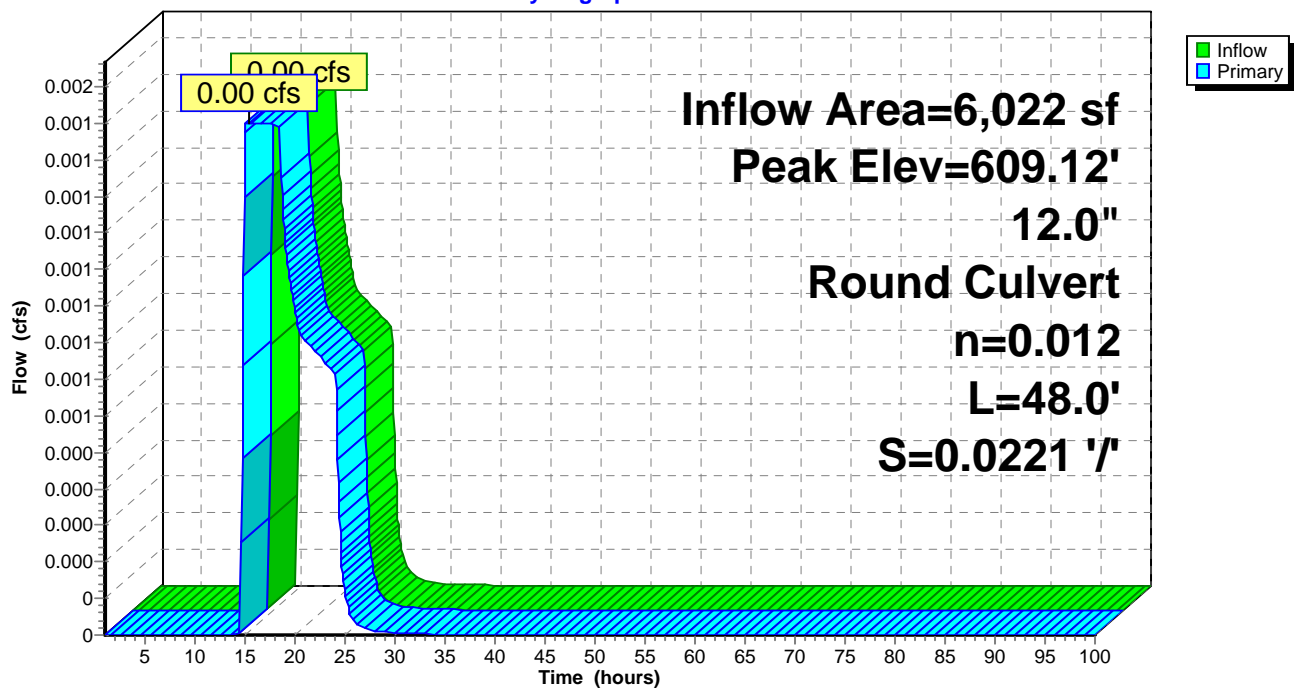
Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

Peak Elev= 609.12' @ 15.00 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	609.10'	<b>12.0" Round Culvert</b> L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 609.10' / 608.04' S= 0.0221 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 15.50 hrs HW=609.12' TW=608.35' (Dynamic Tailwater)  
 1=Culvert (Outlet Controls 0.00 cfs @ 0.64 fps)

**Pond 23P: DS 36****Hydrograph**

**Summary for Pond 24P: DS 40**

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 0.00" for 75% event  
 Inflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

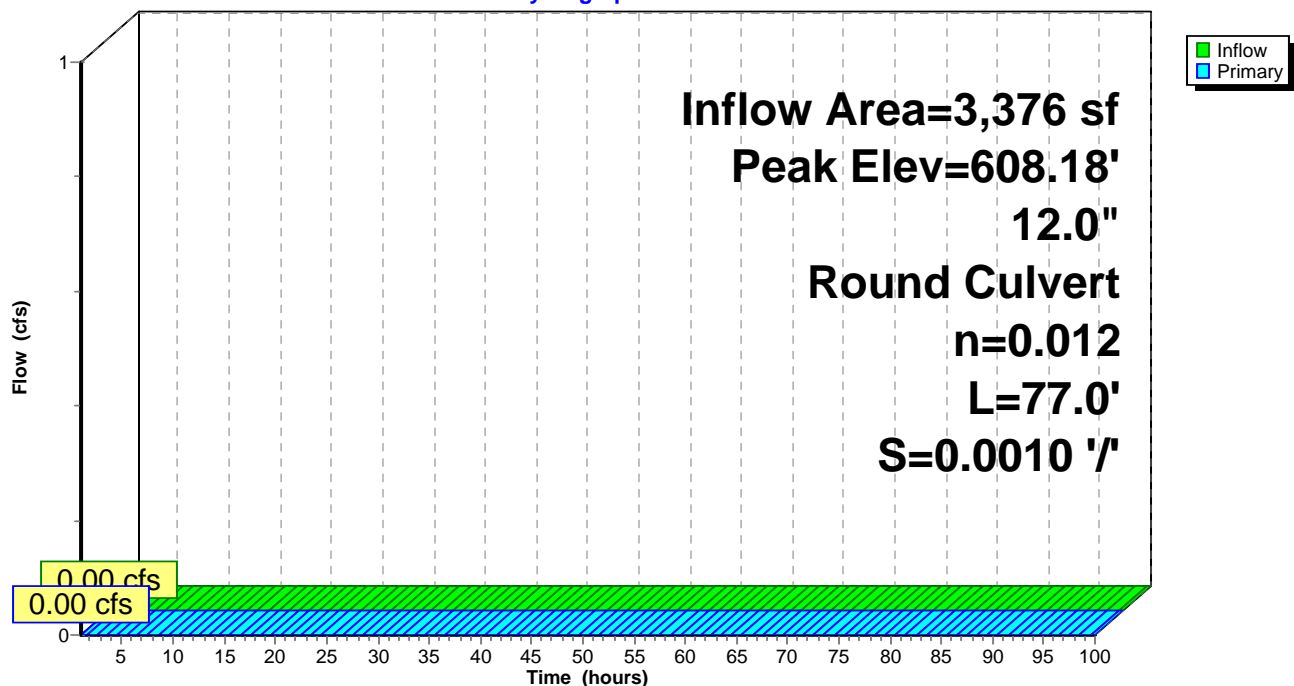
Peak Elev= 608.18' @ 1.00 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.18'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.18' / 608.10' S= 0.0010 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=608.18' TW=608.31' (Dynamic Tailwater)

↑1=Culvert ( Controls 0.00 cfs)

**Pond 24P: DS 40****Hydrograph**

**Summary for Pond DI 252: DI #252 - ELM ST SEWER**

[80] Warning: Exceeded Pond 24P by 0.34' @ 12.05 hrs (0.22 cfs 11,128 cf)

[80] Warning: Exceeded Pond DS41 by 1.51' @ 11.95 hrs (0.00 cfs 500 cf)

Inflow Area = 29,922 sf, 98.00% Impervious, Inflow Depth = 0.21" for 75% event  
 Inflow = 0.19 cfs @ 12.04 hrs, Volume= 532 cf  
 Outflow = 0.19 cfs @ 12.04 hrs, Volume= 533 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.19 cfs @ 12.04 hrs, Volume= 533 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

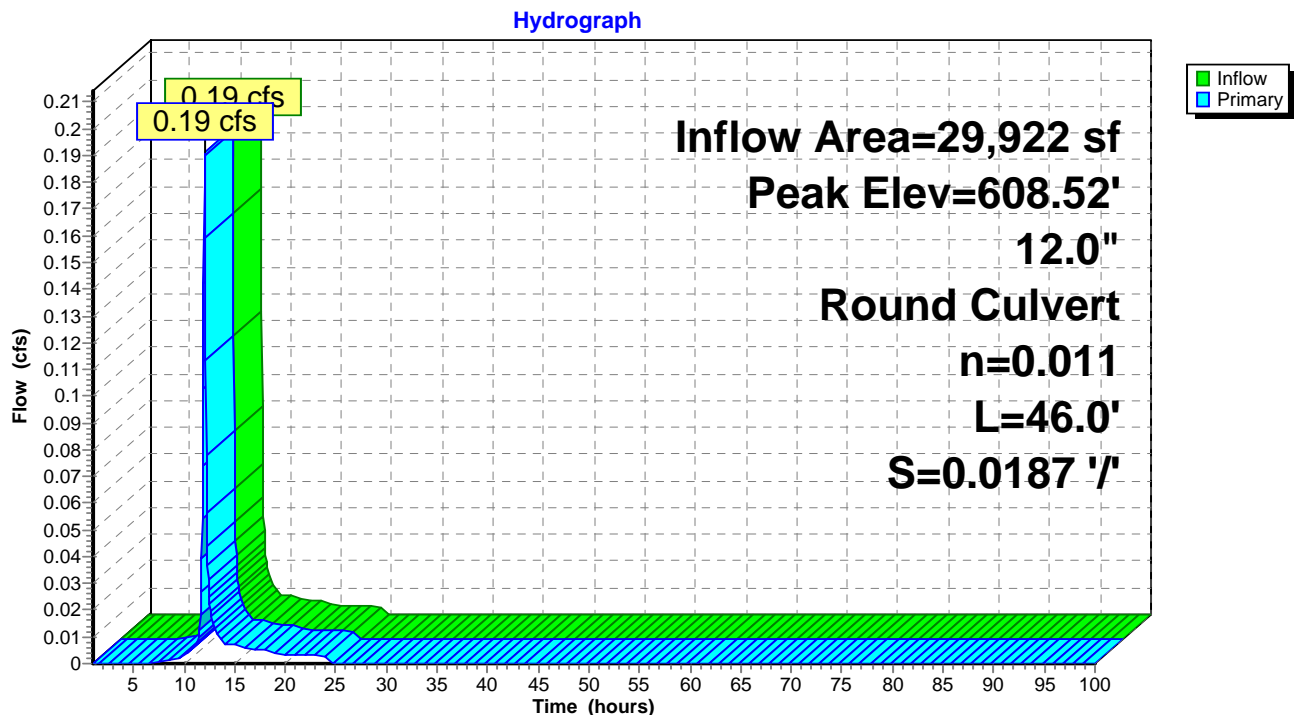
Peak Elev= 608.52' @ 12.04 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.31'	<b>12.0" Round Culvert</b> L= 46.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.31' / 607.45' S= 0.0187 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.19 cfs @ 12.04 hrs HW=608.52' (Free Discharge)

↑1=Culvert (Inlet Controls 0.19 cfs @ 1.56 fps)

**Pond DI 252: DI #252 - ELM ST SEWER**



**Summary for Pond DS 35: Planter PB-1C**

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 0.32" for 75% event  
 Inflow = 0.06 cfs @ 12.04 hrs, Volume= 160 cf  
 Outflow = 0.00 cfs @ 17.65 hrs, Volume= 37 cf, Atten= 98%, Lag= 336.8 min  
 Primary = 0.00 cfs @ 17.65 hrs, Volume= 37 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 609.85' @ 16.40 hrs Surf.Area= 200 sf Storage= 126 cf

Plug-Flow detention time= 468.2 min calculated for 37 cf (23% of inflow)  
 Center-of-Mass det. time= 329.1 min ( 1,144.9 - 815.8 )

Volume	Invert	Avail.Storage	Storage Description
#1	608.28'	446 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.28	200	0.0	0	0
611.78	200	40.0	280	280
611.79	200	20.0	0	280
613.11	200	50.0	132	412
613.28	200	100.0	34	446

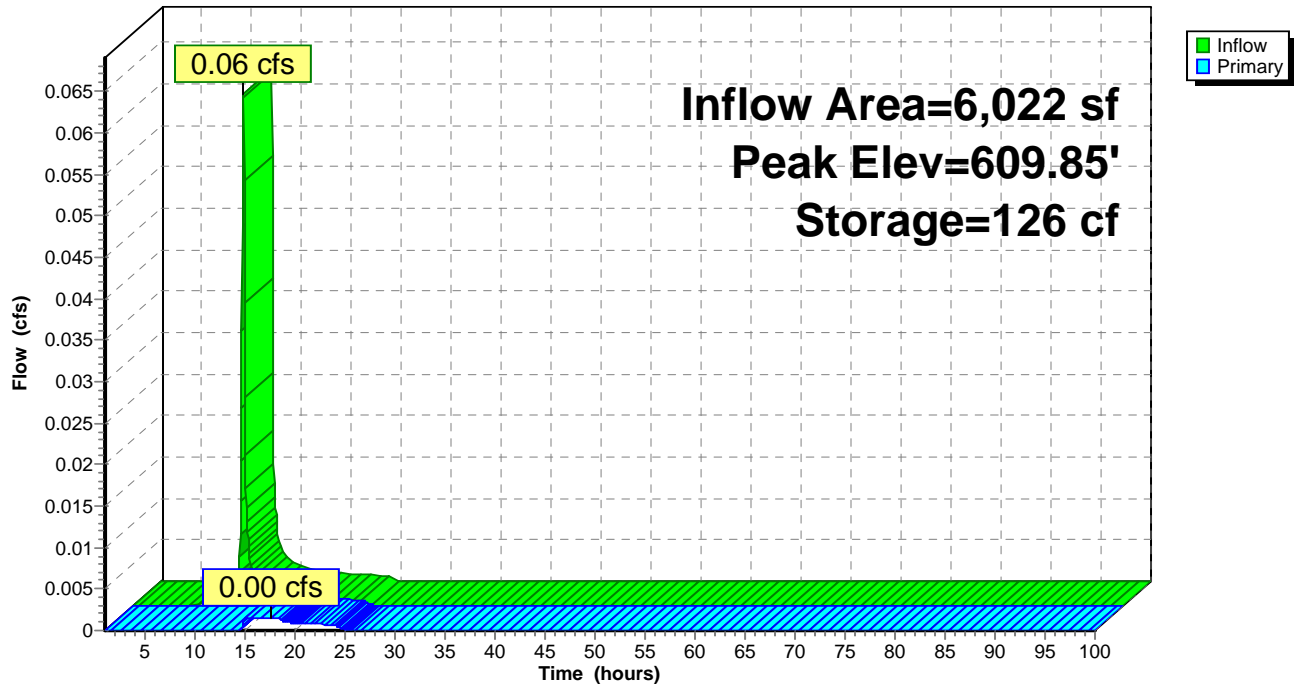
Device	Routing	Invert	Outlet Devices
#1	Primary	609.81'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.81' / 609.75' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	608.78'	<b>6.0" Round Culvert</b> L= 48.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.78' / 608.78' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.28'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.27'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 17.65 hrs HW=609.84' TW=609.12' (Dynamic Tailwater)

1=Culvert (Passes 0.00 cfs of 0.00 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 0.15 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS 35: Planter PB-1C

Hydrograph



**Summary for Pond DS 39: Planter PB-3C**

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 0.26" for 75% event  
 Inflow = 0.03 cfs @ 12.04 hrs, Volume= 72 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 607.79' @ 24.70 hrs Surf.Area= 202 sf Storage= 72 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	606.90'	429 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.90	202	0.0	0	0
610.40	202	40.0	283	283
610.41	202	20.0	0	283
611.73	202	50.0	133	417
611.79	202	100.0	12	429

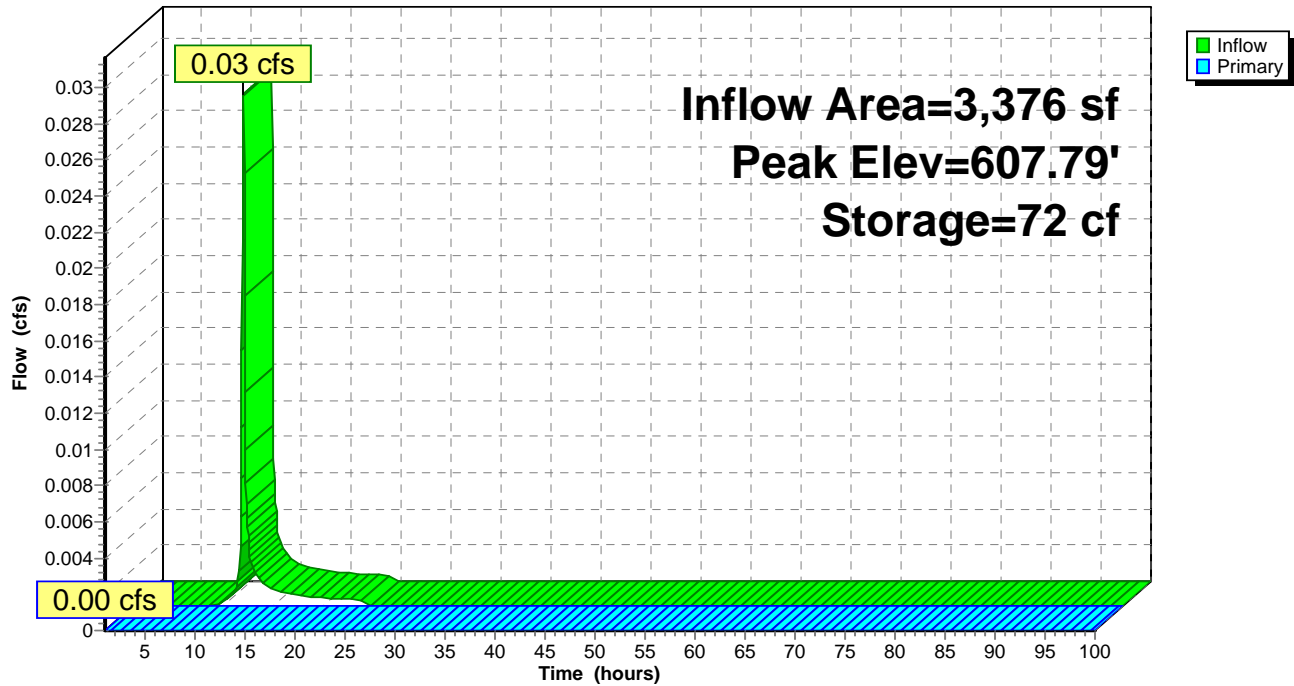
Device	Routing	Invert	Outlet Devices
#1	Primary	608.24'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.24' / 608.18' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	607.39'	<b>6.0" Round Culvert</b> L= 59.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 607.39' / 607.39' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	606.90'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	611.78'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=606.90' TW=608.18' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

**Pond DS 39: Planter PB-3C**

Hydrograph



**Summary for Pond DS41: Planter-PB-4C**

Inflow Area = 1,842 sf, 91.86% Impervious, Inflow Depth = 0.26" for 75% event  
 Inflow = 0.02 cfs @ 12.04 hrs, Volume= 39 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 607.38' @ 24.70 hrs Surf.Area= 202 sf Storage= 39 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	606.89'	451 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.89	202	0.0	0	0
610.38	202	40.0	282	282
610.39	202	20.0	0	282
611.72	202	50.0	134	417
611.89	202	100.0	34	451

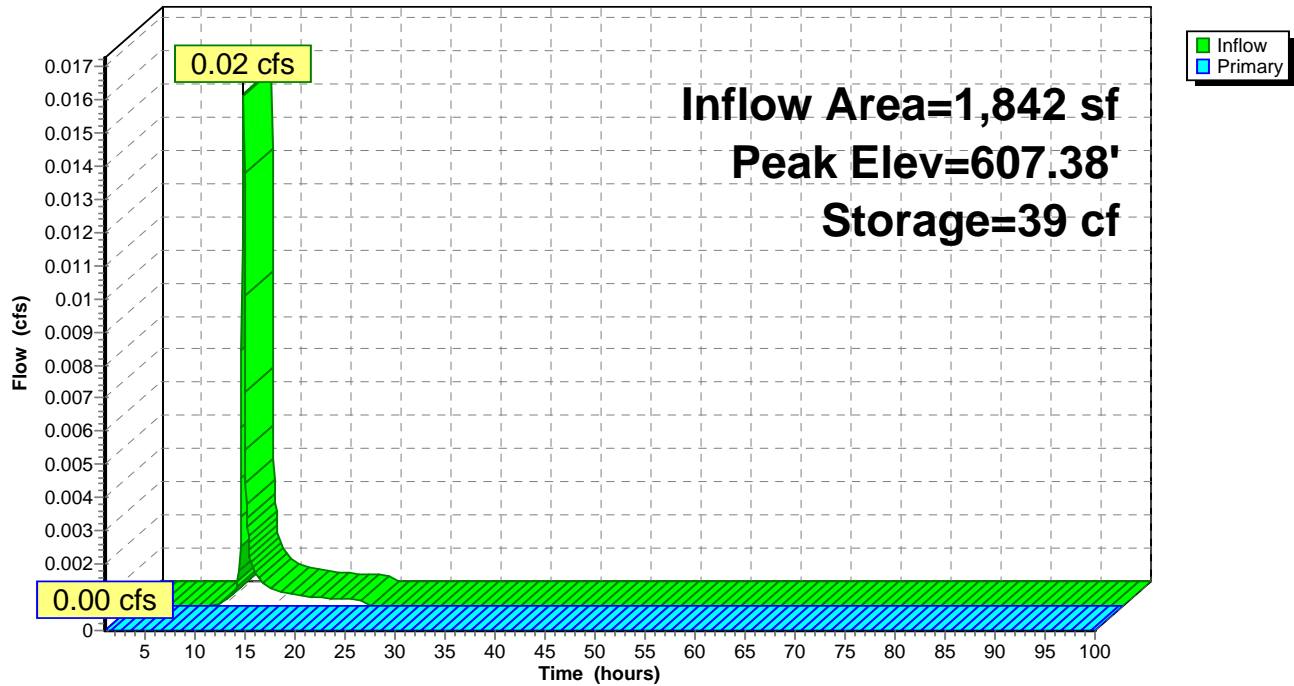
Device	Routing	Invert	Outlet Devices
#1	Primary	608.24'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.24' / 608.18' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	607.39'	<b>6.0" Round Culvert</b> L= 49.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 607.39' / 607.39' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	606.89'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	611.88'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=606.89' TW=608.31' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

Pond DS41: Planter-PB-4C

Hydrograph



**Genesee St Final**

Prepared by Microsoft

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Type II 24-hr WQv Rainfall=0.85"

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Time span=1.00-100.00 hrs, dt=0.05 hrs, 1981 points x 3

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

**Subcatchment 19: Area 19**Runoff Area=6,022 sf 97.38% Impervious Runoff Depth=0.65"  
Tc=12.0 min CN=98 Runoff=0.12 cfs 324 cf**Subcatchment 19B: Area 19B**Runoff Area=4,435 sf 98.74% Impervious Runoff Depth=0.65"  
Tc=12.0 min CN=98 Runoff=0.09 cfs 239 cf**Subcatchment 22: Area 22**Runoff Area=3,376 sf 95.56% Impervious Runoff Depth=0.57"  
Tc=12.0 min CN=97 Runoff=0.06 cfs 159 cf**Subcatchment 23: Area 23**Runoff Area=1,842 sf 91.86% Impervious Runoff Depth=0.57"  
Tc=12.0 min CN=97 Runoff=0.03 cfs 87 cf**Subcatchment 24: Area 24**Runoff Area=14,247 sf 99.41% Impervious Runoff Depth=0.65"  
Tc=12.0 min CN=98 Runoff=0.29 cfs 767 cf**Pond 23P: DS 36**Peak Elev=609.12' Inflow=0.00 cfs 202 cf  
12.0" Round Culvert n=0.012 L=48.0' S=0.0221 '/' Outflow=0.00 cfs 203 cf**Pond 24P: DS 40**Peak Elev=608.57' Inflow=0.00 cfs 51 cf  
12.0" Round Culvert n=0.012 L=77.0' S=0.0010 '/' Outflow=0.00 cfs 51 cf**Pond DI 252: DI #252 - ELM ST SEWER**Peak Elev=608.61' Inflow=0.38 cfs 1,260 cf  
12.0" Round Culvert n=0.011 L=46.0' S=0.0187 '/' Outflow=0.38 cfs 1,261 cf**Pond DS 35: Planter PB-1C**Peak Elev=611.58' Storage=264 cf Inflow=0.12 cfs 324 cf  
Outflow=0.00 cfs 202 cf**Pond DS 39: Planter PB-3C**Peak Elev=608.36' Storage=118 cf Inflow=0.06 cfs 159 cf  
Outflow=0.00 cfs 51 cf**Pond DS41: Planter-PB-4C**Peak Elev=607.97' Storage=87 cf Inflow=0.03 cfs 87 cf  
Outflow=0.00 cfs 0 cf**Total Runoff Area = 29,922 sf Runoff Volume = 1,576 cf Average Runoff Depth = 0.63"**  
**2.00% Pervious = 598 sf 98.00% Impervious = 29,324 sf**

**Summary for Subcatchment 19: Area 19**

Runoff = 0.12 cfs @ 12.03 hrs, Volume= 324 cf, Depth= 0.65"

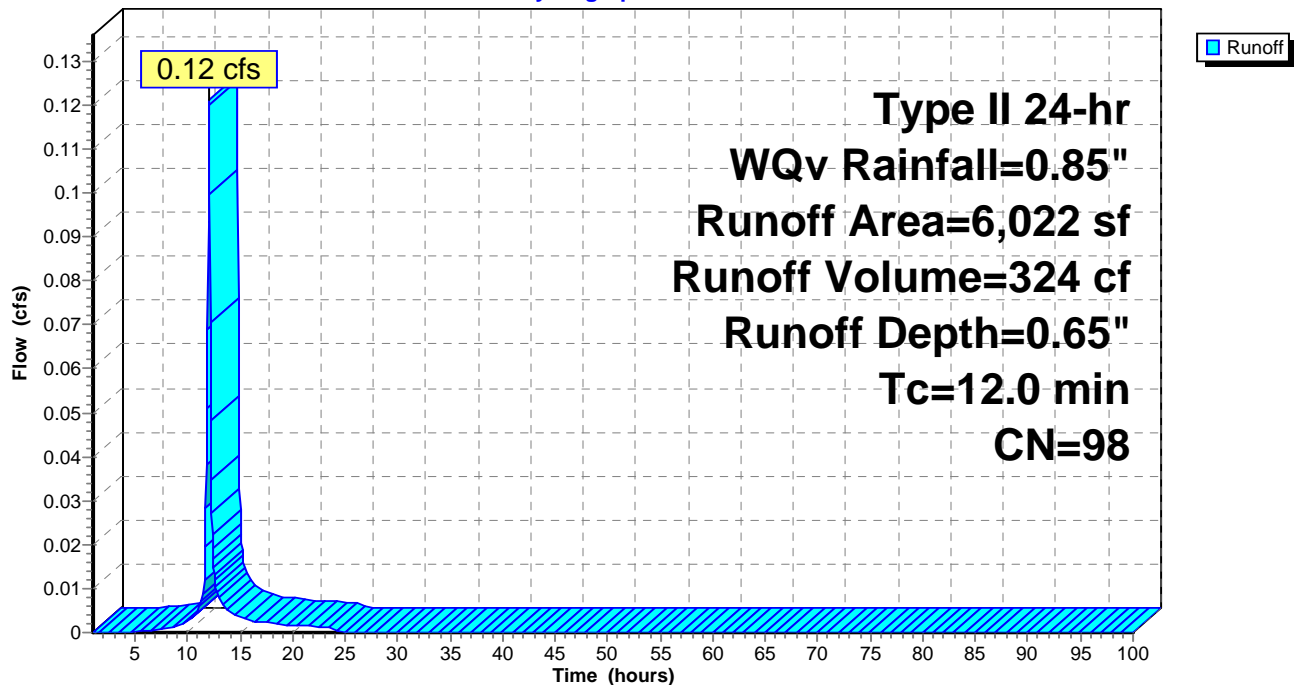
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
158	80	>75% Grass cover, Good, HSG D
5,864	98	Paved parking, HSG D
6,022	98	Weighted Average
158		2.62% Pervious Area
5,864		97.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 19: Area 19**

Hydrograph





**Summary for Subcatchment 19B: Area 19B**

Runoff = 0.09 cfs @ 12.03 hrs, Volume= 239 cf, Depth= 0.65"

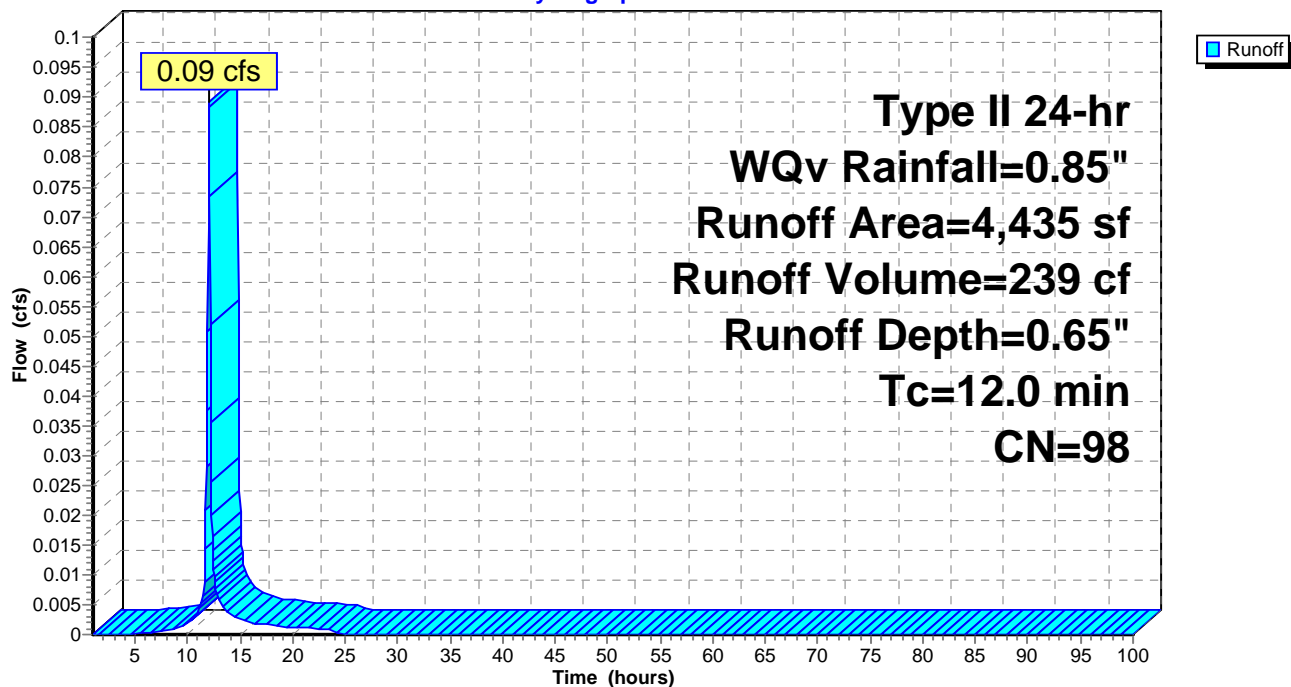
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
56	80	>75% Grass cover, Good, HSG D
4,379	98	Paved parking, HSG D
4,435	98	Weighted Average
56		1.26% Pervious Area
4,379		98.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 19B: Area 19B**

Hydrograph



**Summary for Subcatchment 22: Area 22**

Runoff = 0.06 cfs @ 12.04 hrs, Volume= 159 cf, Depth= 0.57"

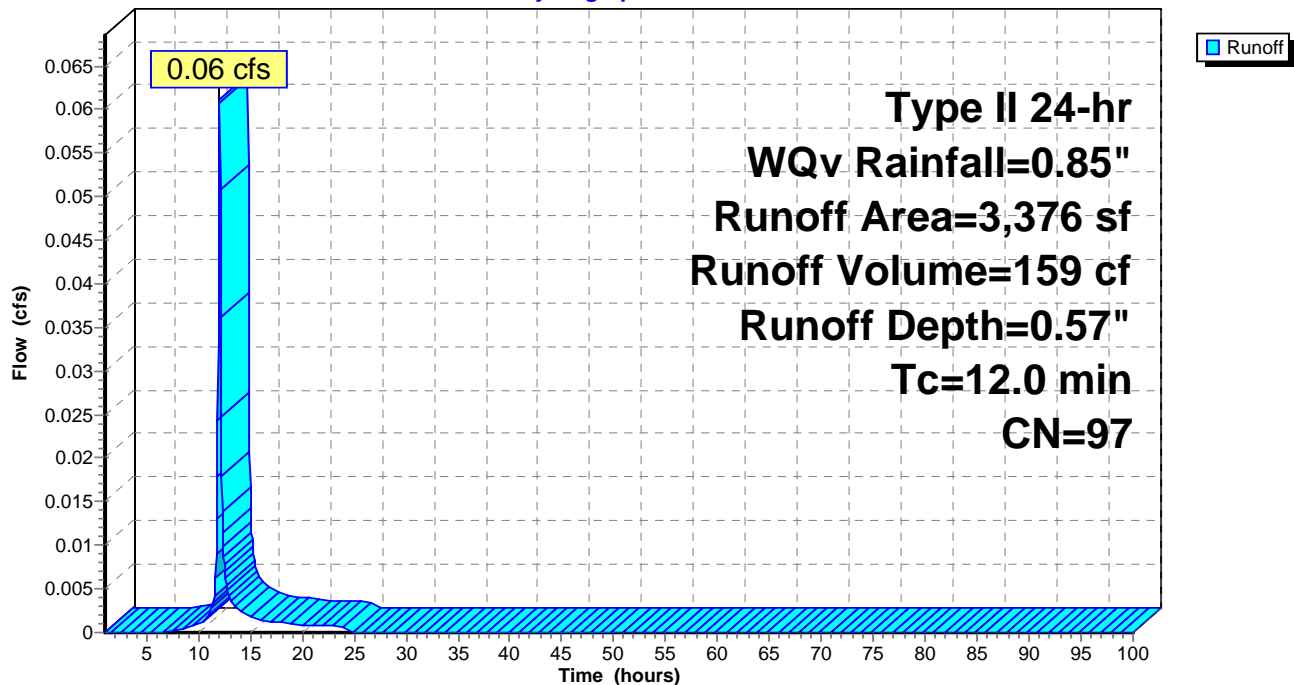
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
150	80	>75% Grass cover, Good, HSG D
3,226	98	Paved parking, HSG D
3,376	97	Weighted Average
150		4.44% Pervious Area
3,226		95.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 22: Area 22**

Hydrograph



**Summary for Subcatchment 23: Area 23**

Runoff = 0.03 cfs @ 12.04 hrs, Volume= 87 cf, Depth= 0.57"

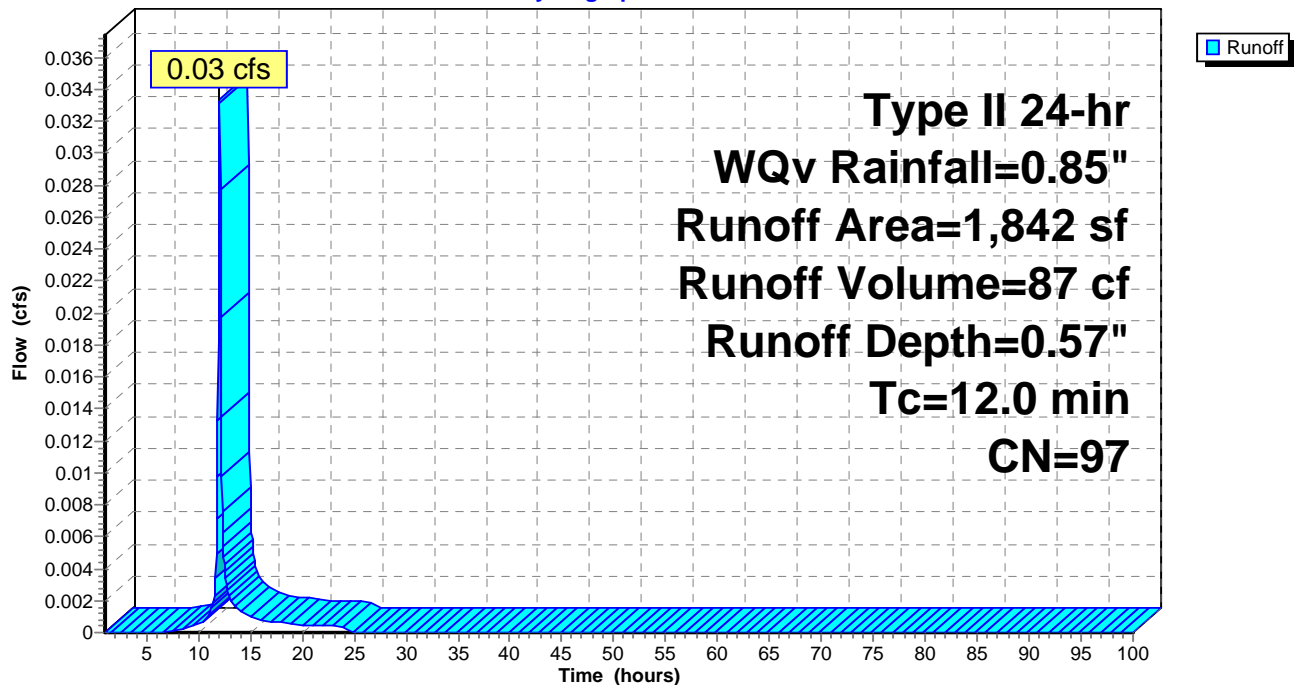
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
150	80	>75% Grass cover, Good, HSG D
1,692	98	Paved parking, HSG D
1,842	97	Weighted Average
150		8.14% Pervious Area
1,692		91.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 23: Area 23**

Hydrograph



**Summary for Subcatchment 24: Area 24**

Runoff = 0.29 cfs @ 12.03 hrs, Volume= 767 cf, Depth= 0.65"

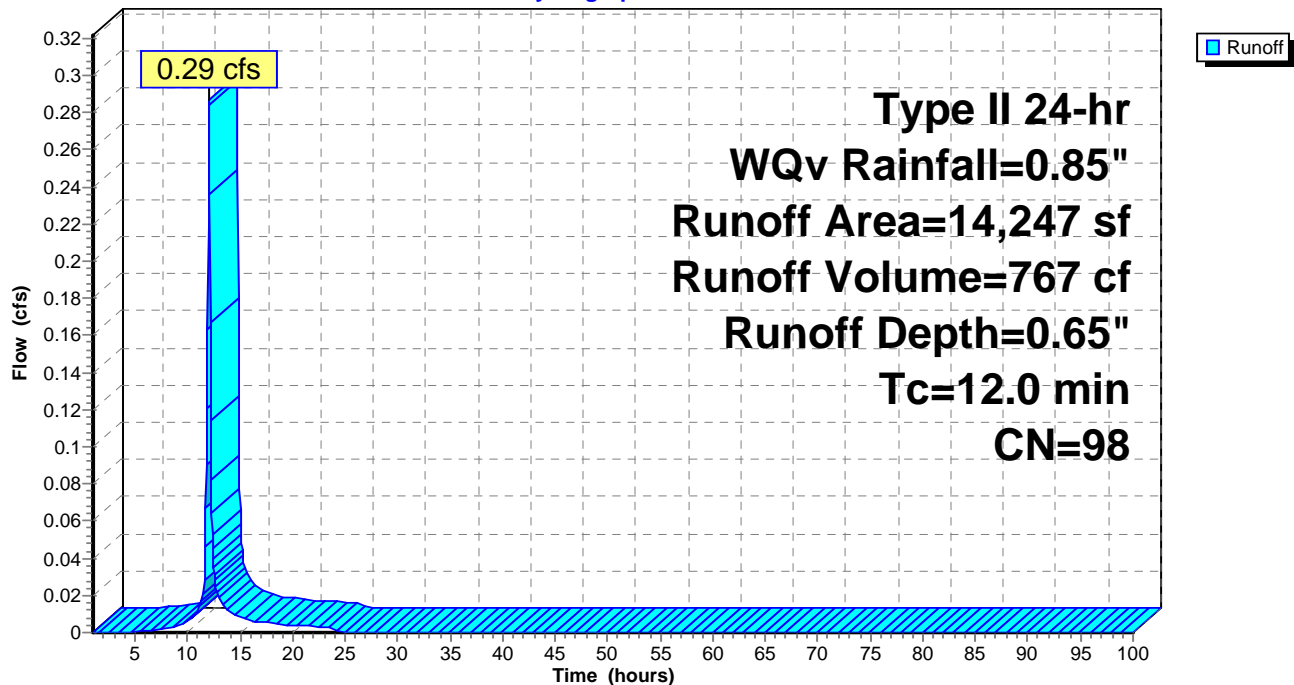
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs  
Type II 24-hr WQv Rainfall=0.85"

Area (sf)	CN	Description
14,163	98	Paved parking, HSG D
84	80	>75% Grass cover, Good, HSG D
14,247	98	Weighted Average
84		0.59% Pervious Area
14,163		99.41% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.0					Direct Entry,

**Subcatchment 24: Area 24**

Hydrograph



**Summary for Pond 23P: DS 36**

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=465)

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 0.40" for WQv event  
 Inflow = 0.00 cfs @ 12.05 hrs, Volume= 202 cf  
 Outflow = 0.00 cfs @ 12.05 hrs, Volume= 203 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 12.05 hrs, Volume= 203 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

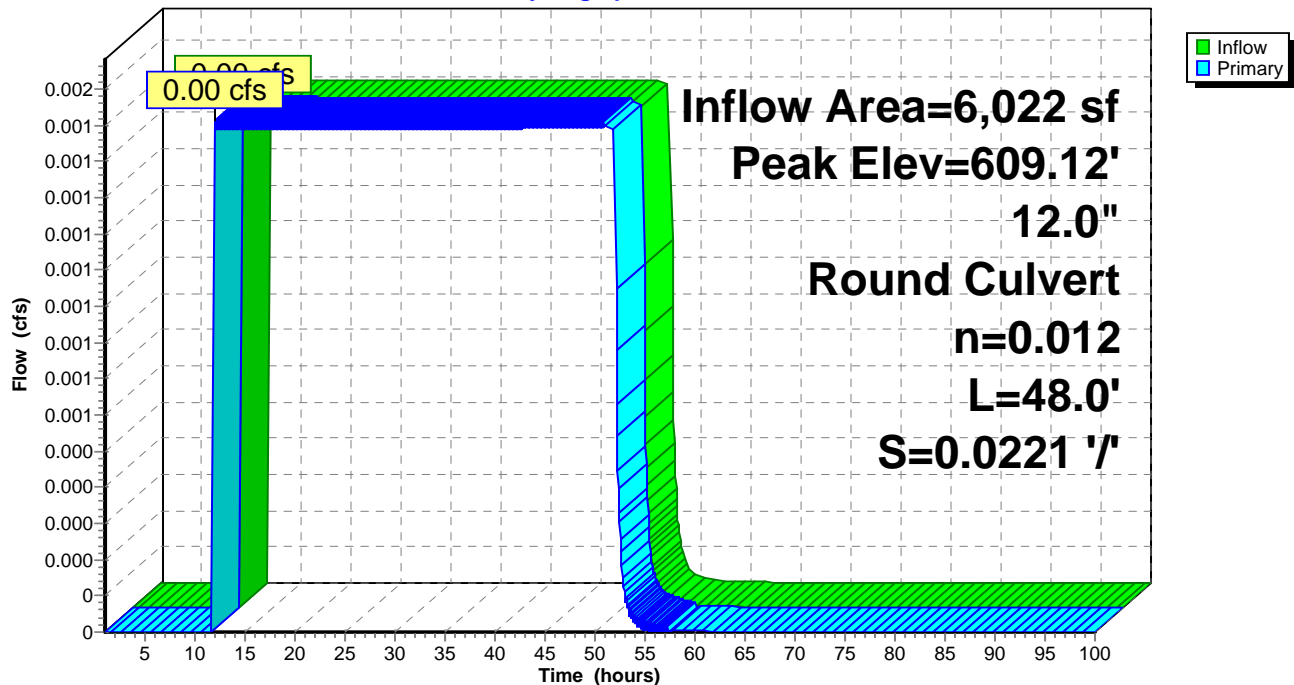
Peak Elev= 609.12' @ 12.05 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	609.10'	<b>12.0" Round Culvert</b> L= 48.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 609.10' / 608.04' S= 0.0221 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 12.05 hrs HW=609.12' TW=608.61' (Dynamic Tailwater)

1=Culvert (Outlet Controls 0.00 cfs @ 0.54 fps)

**Pond 23P: DS 36****Hydrograph**

**Summary for Pond 24P: DS 40**

[80] Warning: Exceeded Pond DS 39 by 1.17' @ 11.95 hrs (0.00 cfs 1 cf)

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 0.18" for WQv event  
 Inflow = 0.00 cfs @ 13.30 hrs, Volume= 51 cf  
 Outflow = 0.00 cfs @ 13.30 hrs, Volume= 51 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 13.30 hrs, Volume= 51 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

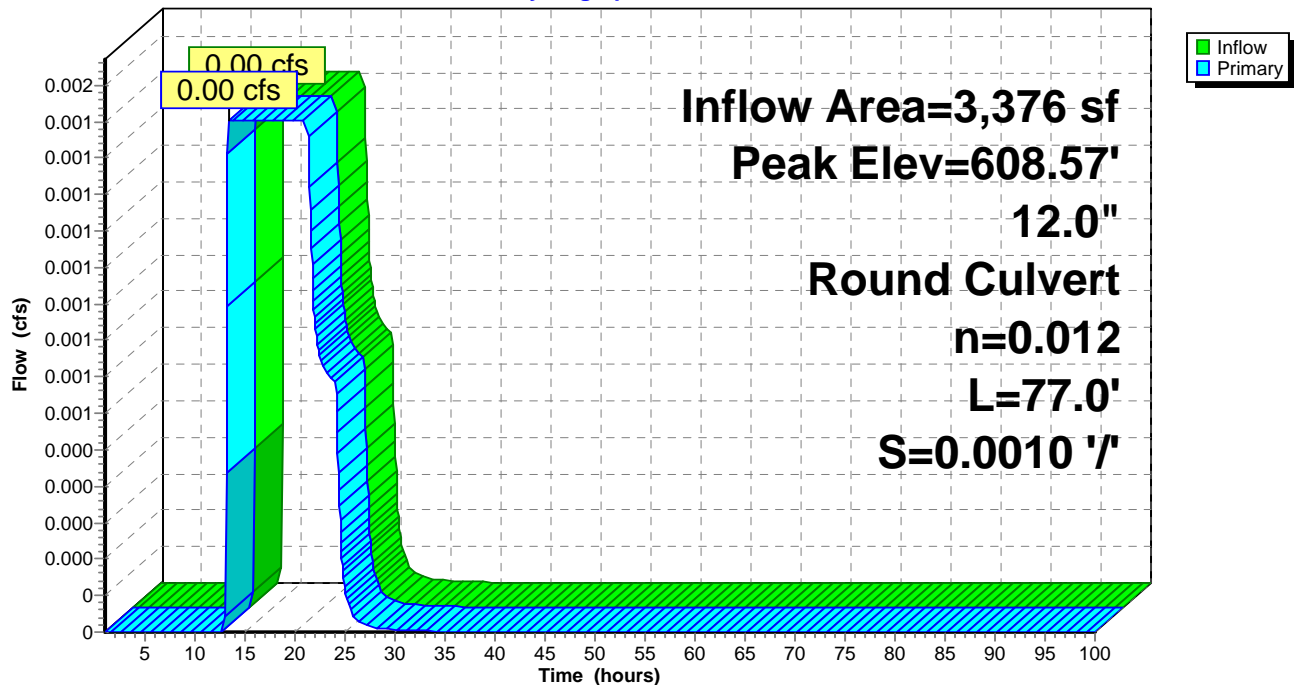
Peak Elev= 608.57' @ 11.95 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.18'	<b>12.0" Round Culvert</b> L= 77.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.18' / 608.10' S= 0.0010 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.00 cfs @ 13.30 hrs HW=608.24' TW=608.38' (Dynamic Tailwater)

↑1=Culvert ( Controls 0.00 cfs)

**Pond 24P: DS 40****Hydrograph**

**Summary for Pond DI 252: DI #252 - ELM ST SEWER**

[80] Warning: Exceeded Pond 24P by 0.36' @ 12.15 hrs (0.24 cfs 12,618 cf)

[80] Warning: Exceeded Pond DS41 by 1.44' @ 7.40 hrs (0.00 cfs 500 cf)

Inflow Area = 29,922 sf, 98.00% Impervious, Inflow Depth = 0.51" for WQv event  
 Inflow = 0.38 cfs @ 12.03 hrs, Volume= 1,260 cf  
 Outflow = 0.38 cfs @ 12.03 hrs, Volume= 1,261 cf, Atten= 0%, Lag= 0.0 min  
 Primary = 0.38 cfs @ 12.03 hrs, Volume= 1,261 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3

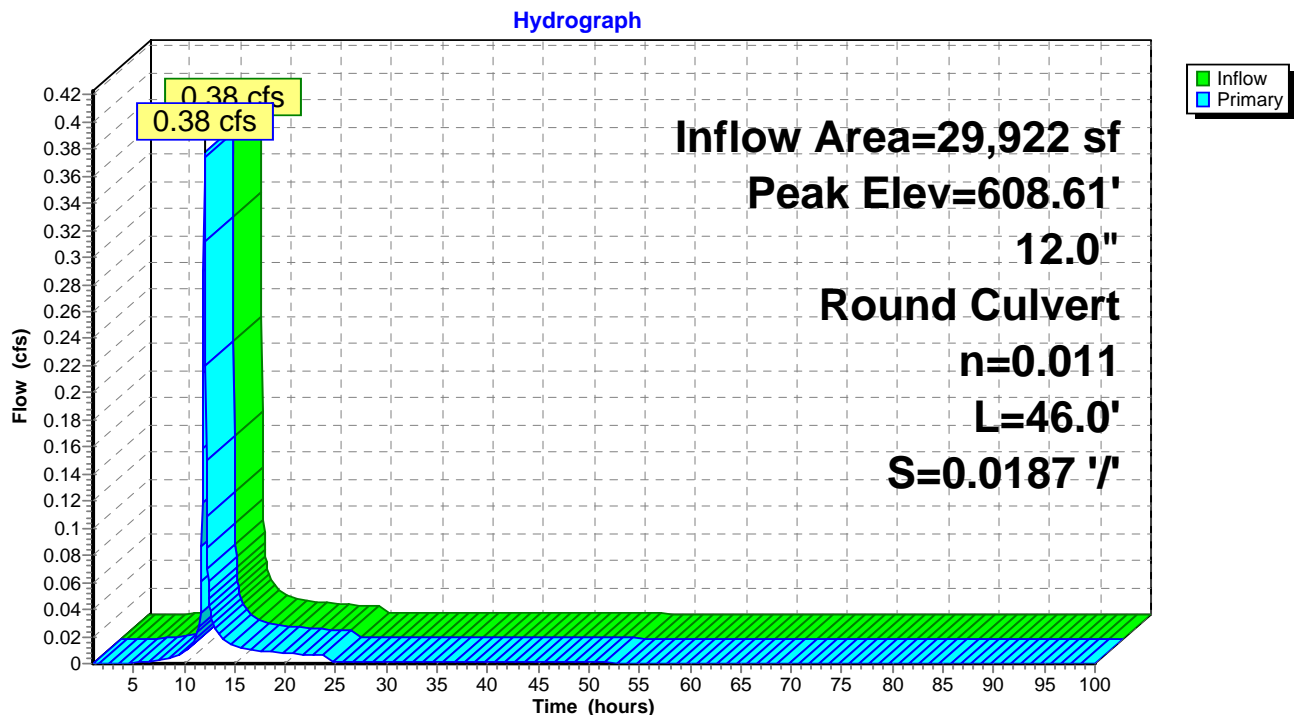
Peak Elev= 608.61' @ 12.03 hrs

Flood Elev= 647.22'

Device	Routing	Invert	Outlet Devices
#1	Primary	608.31'	<b>12.0" Round Culvert</b> L= 46.0' RCP, sq.cut end projecting, Ke= 0.500 Inlet / Outlet Invert= 608.31' / 607.45' S= 0.0187 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf

**Primary OutFlow** Max=0.37 cfs @ 12.03 hrs HW=608.61' (Free Discharge)

↑**1=Culvert** (Inlet Controls 0.37 cfs @ 1.86 fps)

**Pond DI 252: DI #252 - ELM ST SEWER**

**Summary for Pond DS 35: Planter PB-1C**

Inflow Area = 6,022 sf, 97.38% Impervious, Inflow Depth = 0.65" for WQv event  
 Inflow = 0.12 cfs @ 12.03 hrs, Volume= 324 cf  
 Outflow = 0.00 cfs @ 12.05 hrs, Volume= 202 cf, Atten= 99%, Lag= 1.0 min  
 Primary = 0.00 cfs @ 12.05 hrs, Volume= 202 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 611.58' @ 21.70 hrs Surf.Area= 200 sf Storage= 264 cf

Plug-Flow detention time= 1,241.6 min calculated for 202 cf (62% of inflow)  
 Center-of-Mass det. time= 1,137.8 min ( 1,933.5 - 795.7 )

Volume	Invert	Avail.Storage	Storage Description
#1	608.28'	446 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
608.28	200	0.0	0	0
611.78	200	40.0	280	280
611.79	200	20.0	0	280
613.11	200	50.0	132	412
613.28	200	100.0	34	446

Device	Routing	Invert	Outlet Devices
#1	Primary	609.81'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 609.81' / 609.75' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	608.78'	<b>6.0" Round Culvert</b> L= 48.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.78' / 608.78' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	608.28'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	613.27'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

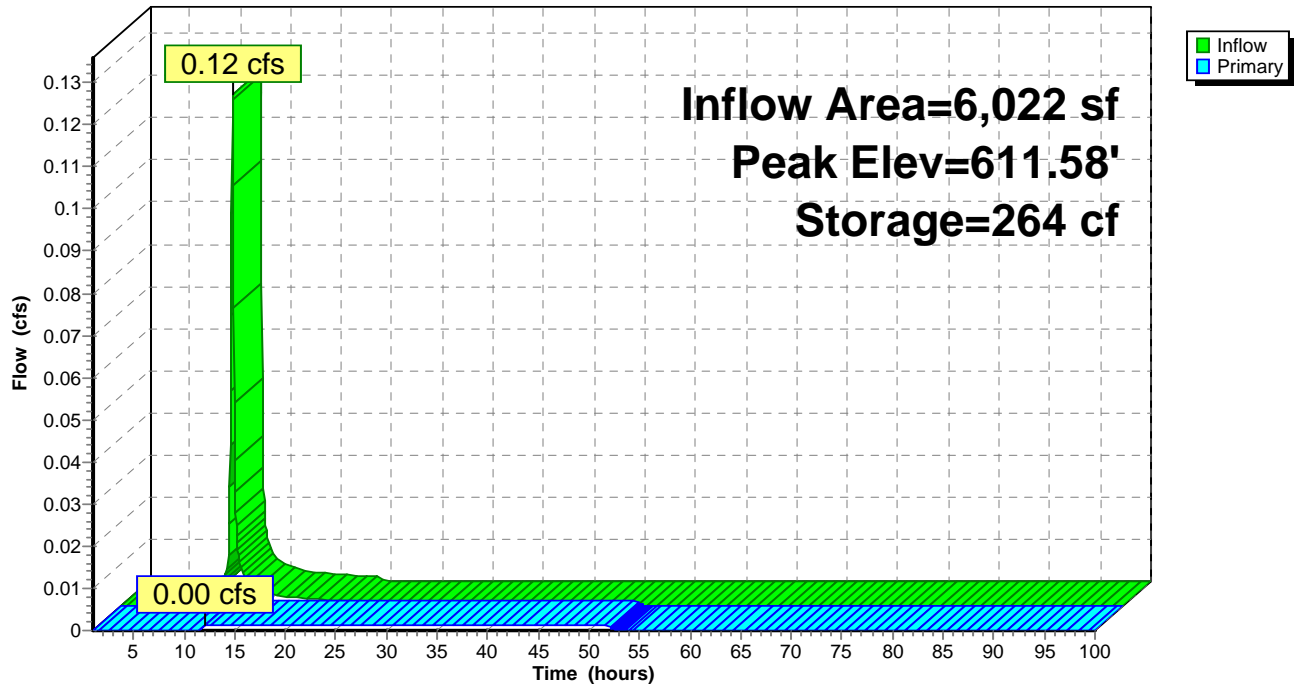
**Primary OutFlow** Max=0.00 cfs @ 12.05 hrs HW=609.97' TW=609.12' (Dynamic Tailwater)

1=Culvert (Passes 0.00 cfs of 0.06 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 0.33 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate ( Controls 0.00 cfs)



**Pond DS 35: Planter PB-1C**

Hydrograph



**Summary for Pond DS 39: Planter PB-3C**

Inflow Area = 3,376 sf, 95.56% Impervious, Inflow Depth = 0.57" for WQv event  
 Inflow = 0.06 cfs @ 12.04 hrs, Volume= 159 cf  
 Outflow = 0.00 cfs @ 13.30 hrs, Volume= 51 cf, Atten= 98%, Lag= 75.9 min  
 Primary = 0.00 cfs @ 13.30 hrs, Volume= 51 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 608.36' @ 16.14 hrs Surf.Area= 202 sf Storage= 118 cf

Plug-Flow detention time= 421.0 min calculated for 51 cf (32% of inflow)  
 Center-of-Mass det. time= 292.7 min ( 1,103.9 - 811.2 )

Volume	Invert	Avail.Storage	Storage Description
#1	606.90'	429 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.90	202	0.0	0	0
610.40	202	40.0	283	283
610.41	202	20.0	0	283
611.73	202	50.0	133	417
611.79	202	100.0	12	429

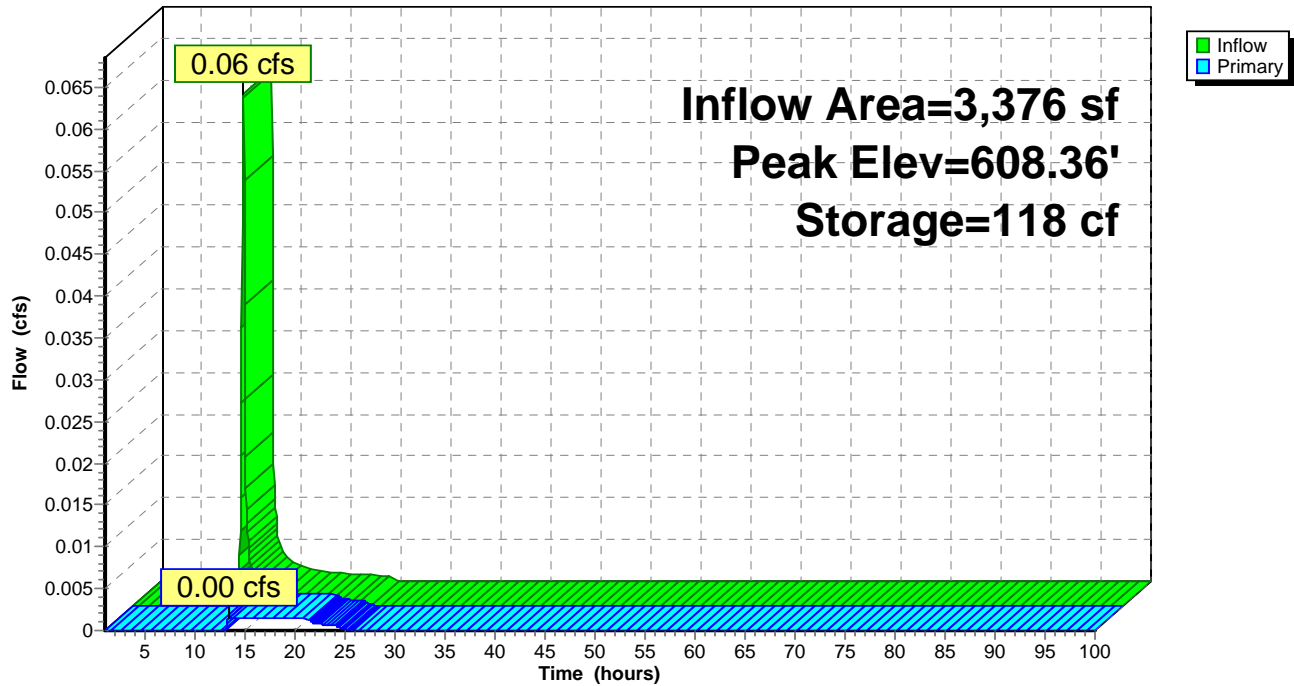
Device	Routing	Invert	Outlet Devices
#1	Primary	608.24'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.24' / 608.18' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	607.39'	<b>6.0" Round Culvert</b> L= 59.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 607.39' / 607.39' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	606.90'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	611.78'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 13.30 hrs HW=608.27' TW=608.24' (Dynamic Tailwater)

1=Culvert (Passes 0.00 cfs of 0.00 cfs potential flow)  
 2=Culvert (Passes 0.00 cfs of 0.13 cfs potential flow)  
 3=Exfiltration (Exfiltration Controls 0.00 cfs)  
 4=Orifice/Grate ( Controls 0.00 cfs)

**Pond DS 39: Planter PB-3C**

Hydrograph



**Summary for Pond DS41: Planter-PB-4C**

Inflow Area = 1,842 sf, 91.86% Impervious, Inflow Depth = 0.57" for WQv event  
 Inflow = 0.03 cfs @ 12.04 hrs, Volume= 87 cf  
 Outflow = 0.00 cfs @ 1.00 hrs, Volume= 0 cf, Atten= 100%, Lag= 0.0 min  
 Primary = 0.00 cfs @ 1.00 hrs, Volume= 0 cf

Routing by Dyn-Stor-Ind method, Time Span= 1.00-100.00 hrs, dt= 0.05 hrs / 3  
 Peak Elev= 607.97' @ 24.70 hrs Surf.Area= 202 sf Storage= 87 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)  
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	606.89'	451 cf	<b>Storage (Prismatic)</b> Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
606.89	202	0.0	0	0
610.38	202	40.0	282	282
610.39	202	20.0	0	282
611.72	202	50.0	134	417
611.89	202	100.0	34	451

Device	Routing	Invert	Outlet Devices
#1	Primary	608.24'	<b>6.0" Round Culvert</b> L= 5.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 608.24' / 608.18' S= 0.0120 1' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	607.39'	<b>6.0" Round Culvert</b> L= 49.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 607.39' / 607.39' S= 0.0000 1' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.20 sf
#3	Device 2	606.89'	<b>0.300 in/hr Exfiltration over Surface area</b>
#4	Device 1	611.88'	<b>24.0" x 24.0" Horiz. Orifice/Grate</b> C= 0.600 Limited to weir flow at low heads

**Primary OutFlow** Max=0.00 cfs @ 1.00 hrs HW=606.89' TW=608.31' (Dynamic Tailwater)

1=Culvert ( Controls 0.00 cfs)  
 2=Culvert ( Controls 0.00 cfs)  
 3=Exfiltration (Passes 0.00 cfs of 0.00 cfs potential flow)  
 4=Orifice/Grate ( Controls 0.00 cfs)

## Pond DS41: Planter-PB-4C

Hydrograph

